2013/14 PRODUCT CATALOG

BK PRECISION®

About B&K Precision
Introduction

A message from the President

It's hard to imagine that B&K Precision has been serving the electronics industry for over 60 years now. From modest beginnings in a TV Repair shop in Chicago, to today's modern manufacturing facilities in Taiwan, France and China; R&D and marketing offices in US, Israel and Romania; and distributors in over 50 countries, B&K have continued to innovate, strengthen, and expand our product offerings.

Today's electronic engineers and students may not recall the era of cathode ray tubes, but our company started by making products to test, repair, and even rejuvenate CRT's, extending the life-span of TV sets.

With broad changes in technology over the past 6 decades, we've continued to develop diverse test and measurement solutions, including our oscilloscopes, LCR meters, DC & AC power supplies, signal generators, and DC electronic loads for solar and battery testing, to name a few.

Many technical schools and universities around the world use our instruments, particularly our function and arbitrary waveform generators, multimeters and oscilloscopes, to teach students about fundamental and advanced electronics. Our commitment to education has led us to the creation of a program that rewards enterprising schools and students with free test equipment.

As we look forward to the future with our global team of dedicated employees, we are committed to continuing our work of developing new, exciting and dependable test equipment to serve your testing needs.

Sincerely,

Victor Tolan
President and CEO

Introduction

For more than 60 years B&K Precision has provided test and measurement solutions to customers from wide-ranging fields including research and development, product design, industrial maintenance, electronic field service, production line testing, and the educational community, among others. Universities and technical schools worldwide have made our instruments standard equipment in their training programs.

Since 1951 the B&K Precision name has represented quality, consistency, and value. We take pride in supplying outstanding products and excellent service at fair prices. Full certification by the International Organization for Standardization (ISO 9001:2008) reflects our commitment to quality. Our mission is to maintain the standards that have built our reputation, develop new products to meet advancing needs, and continue providing the products and service our customers have come to trust.

B&K offers a wide range of power test and general purpose instruments. Our core products include power supplies and DC electronic loads, signal generators (especially function and arbitrary generators), component testers, oscilloscopes, spectrum analyzers, and multimeters. We provide a full complement of device programmers, video and cable testers, electrical and battery testers, and environmental testers. We also supply a comprehensive array of probes, leads, adapters, and additional accessories that make testing easier.

We stand behind every product we ship. Our warranties are valid worldwide, and we provide global service and support to guarantee your satisfaction. A growing number of our instruments come with a standard 3-year warranty, covering parts and labor.

Our in-house technicians work directly with you to provide any necessary calibrations or repairs, ensuring optimum performance.

History

B&K Precision helped pioneer the electronic testing industry, and like so many early electronics firms, B&K started in a garage. By 1948, when Americans had begun buying televisions in large numbers, Chicago entrepreneur Carl Korn and his partner Philip Ban responded to the need for maintenance of often-unreliable sets. Frustrated by a lack of equipment to easily test television components, Ban and Korn began making their own testing devices and opened Central Television Service Company. They soon had a thriving business selling CRT rejuvenators and vacuum tube testers to other television service shops. By 1951, Korn had developed what would become B&K Precision into a company that had branched out into other areas of electronic testing and measurement. B&K engineers broke new ground, earning several patents in the field of television test equipment, and rapidly pushed the company to become a worldwide leader in electronic measurement.

About B&K Precision
Family of Companies

In 1961, Carl Korn placed B&K Precision under an umbrella corporation, Dynascan, comprising a variety of electronics firms. One of those companies, Cobra Electronics, came to dominate the Citizen's Band (CB) radio phenomenon. Choosing to focus on radios, Korn sold B&K Precision. Through an ensuing series of ownership transitions B&K continued to produce high-quality test and measurement products.

In 1996, engineer Victor Tolan, headed up a new ownership team for B&K Precision that launched a greatly expanded product line. The company also expanded upon its American base to better serve international customers. Company headquarters moved to southern California to provide improved service to Asia. In 2004, B&K expanded its presence in Europe through the acquisition of Sefram Instruments to better meet customer needs in the region. With the acquisition of Motech Industries' instrument division in 2011, we strengthened our expertise in programmable linear and high power switching power supplies.

B&K Precision has come a long way from its days in Carl Korn's garage, but holds fast to the business ideals of innovation, flexibility, and solid customer service that has guided the company from its humble beginnings in America, while reaching out to embrace the rapidly expanding global marketplace. We now provide service and support on four continents, and our design team draws upon resources in places as wide-ranging as Romania, Israel, and Taiwan.

Americas – B&K Precision
Our headquarters in Yorba Linda, California house most of our administrative and executive functions including research and design, customer service and repair, and sales and marketing. The California warehouse ships to North, Central, and South America, and our service center provides our customers with live, one-on-one support.

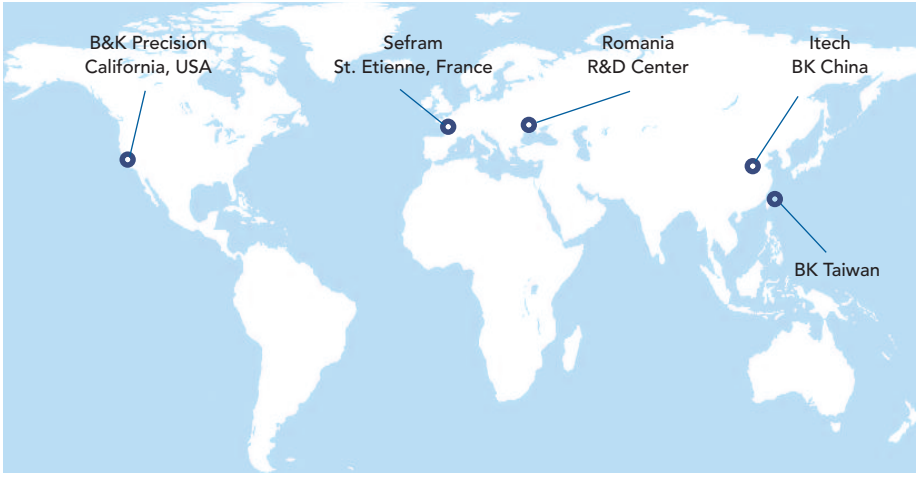
Europe – Sefram
Our European customers have become most familiar with B&K through our Sefram subsidiary. Sefram's offices in St. Etienne, France currently support customers in Europe, the Middle East, and Africa.

Asia – BK Taiwan, BK China and Itech
Our BK Taiwan and Itech plants primarily design and manufacture programmable power supplies and DC loads, and together with the BK China office provide distribution, sales and service support for that region. Engineers in China also know us through our Itech brand.

Our distribution partners
An extensive network of independent distributors offers B&K Precision products around the globe. Visit our website to find your local authorized distributor, and even view available inventory from participating distributors. You can buy in confidence, knowing that all our products carry B&K's warranty, and worldwide service and support.

As B&K Precision keeps growing, we continue to uphold the standards we set more than a half-century ago even as we find new answers to our customers' needs. Whether you require measuring devices for a new venture; test equipment to ensure standards adherence; technology for teaching budding young scientists—or instruments for test and measurement challenges that depend on quality and accuracy, B&K Precision Corporation has solutions.

Global network of partner companies
Location of major B&K Precision sales, service/support, R&D and manufacturing facilities



For an indepth and most up-to-date product information, support news and more, visit www.bkprecision.com

Product Overview Page

One location for all product related information. (Single model # or series)

Data sheet, user manual, and available accessories and software

MSRP and warranty information

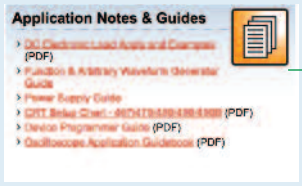
Click for large product photos

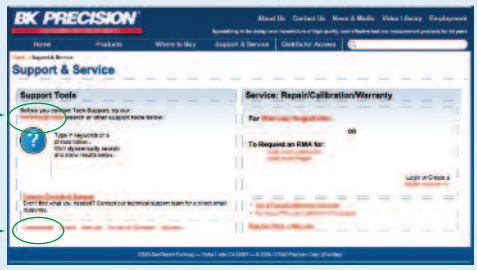
Product Video

Where to Buy

Technical Resources

Search and find answers to frequently asked questions, plus a wealth of resources: application notes, product guides, manuals and drivers.



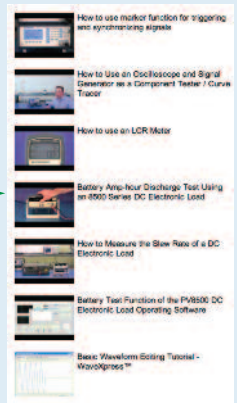


Video Library

View product overviews, demonstrations, and application videos in English, Spanish and Portuguese.

Videos available in English, Español, and Português

Scrollable playlist



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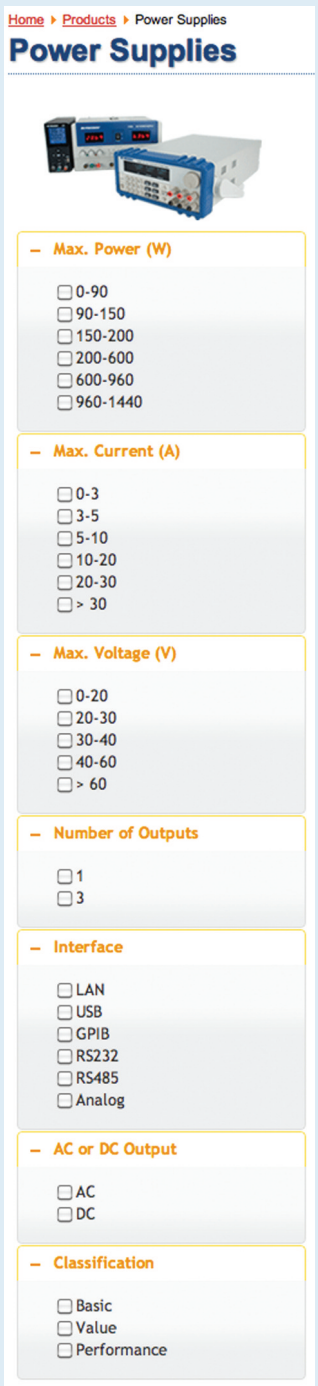
Power Supply Filter Tool

The B&K Precision website features comprehensive filtering tools to help you quickly choose the right instrument for your application.



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POWER SUPPLIES

Clean and reliable power

Power Supplies
Selection Guide

Performance: These DC power supplies offer high speed and accuracy combined with advanced features such as DUT protection, list mode, and full programmability. All supplies offer SCPI compatible command set and come with Labview drivers. Ideal for R&D and ATE applications.

Performance (DC)

Power (W)	Max. Voltage (V)	Max. Current (A)	Number of Outputs	Number of Ranges	Display (Meter)	Ripple & Noise	Programming Accuracy	Transient Response	Remote Interface(s)	Model	Page
86.4	72	1.2	1	1	VFD	≤5 mVpp	<0.03%+6 mV <0.05%+1 mA	<150 us	USB, RS232	9124	12
96	32	3	1	1	VFD	≤4 mVpp	<0.03%+3 mV <0.05%+2 mA	<150 us	USB, RS232	9120A	12
100	20	5	1	1	VFD	≤3 mVpp	<0.03%+3 mV <0.05%+2 mA	<150 us	USB, RS232	9121A	12
150	60	2.5	1	1	VFD	≤5 mVpp	<0.03%+6 mV, <0.05%+1.5 mA	<150 us	USB, RS232	9122A	12
150	30	5	1	1	VFD	≤4 mVpp	<0.03%+3mV, <0.05%+2.5 mA	<150 us	USB, RS232, GPIB	9123A	12
195	30 (Ch1 & Ch2), 5 (Ch3)	3 (Ch1, Ch2, Ch3)	3	1	VFD	≤3 mVpp	<0.03%+10 mV, <0.1%+5 mA	<500 us for Ch1&2, <200 us for Ch3	USB, RS232*	9130	12
312	5.2	60	1	1	VFD	≤0.005% +3 mVpp	<0.02%+2 mV <0.1%+30 mA	<100 us	USB, RS232	9150	12
540	20	27	1	1	VFD	≤0.005% +3 mVpp	<0.02%+6mV <0.1%+15 mA	<120 us	USB, RS232	9151	12
540	30	18	1	1	VFD	≤0.005% +3 mVpp	<0.02%+6 mV <0.1%+15 mA	<100 us	USB, RS232	9152	12
540	60	9	1	1	VFD	≤0.005% +4 mVpp	<0.02%+12 mV <0.05%+10 mA	<50 us	USB, RS232	9153	12
100	10/20	10/5	1	2	LCD	≤3 mVpp	<0.05%+5 mV <0.1%+2 mA	<50 us	USB, GPIB*, LAN*, RS232*, RS485*, DI/O*	9171	8-9
105	35/70	3/1.5	1	2	LCD	≤5 mVpp	<0.05%+10 mV <0.1%+1 mA	<50 us	USB, GPIB*, LAN*, RS232*, RS485*, DI/O*	9172	8-9
200	10/20 (CH1 & CH2)	10/5 (CH1 & CH2)	2	2	LCD	≤3 mVpp	<0.05%+5 mV <0.1%+2 mA	<50 us	USB, GPIB*, LAN*, RS232*, RS485*, DI/O*	9173	8-9
210	35/70 (CH1 & CH2)	3/1.5 (CH1 & CH2)	2	2	LCD	≤5 mVpp	<0.05%+10 mV <0.1%+1 mA	<50 us	USB, GPIB*, LAN*, RS232*, RS485*, DI/O*	9174	8-9
144	18/36	8/4	1	2	LCD	≤3 mVpp	<0.05%+5 mV <0.1%+2 mA	<50 us	USB, GPIB*, LAN*, RS232*, RS485*, DI/O*	9181	8-9
200	10/20	20/10	1	2	LCD	≤3 mVpp	<0.05%+5 mV <0.1%+5 mA	<50 us	USB, GPIB*, LAN*, RS232*, RS485*, DI/O*	9182	8-9
210	35/70	6/3	1	2	LCD	≤5 mVpp	<0.05%+10 mV <0.1%+2 mA	<50 us	USB, GPIB*, LAN*, RS232*, RS485*, DI/O*	9183	8-9
200	100/200	2/1	1	2	LCD	≤15 mVpp	<0.05%+50 mV <0.1%+1 mA	<100 us	USB, GPIB*, LAN*, RS232*, RS485*, DI/O*	9184	8-9
210	400/600	0.5/0.35	1	2	LCD	≤45 mVpp	<0.05%+100 mV <0.1%+0.1 mA	<100 us	USB, GPIB*, LAN*, RS232*, RS485*, DI/O*	9185	8-9
1200	60	20	1	Multi	VFD	≤60 mVpp	<0.02%+30 mV <0.1%+60 mA	--	USB, GPIB, RS232, RS485	9115	11
1440	100	14.4	1	1	LCD	≤80 mVpp	<0.05%+25 mV <0.05%+6 mA	<400 μs	USB, RS485, (GPIB, LAN)	XLN10014(-GL)	10-11
1440	36	40	1	1	LCD	≤60 mVpp	<0.05%+10 mV < 0.05%+10 mA	<400 μs	USB, RS485, (GPIB, LAN)	XLN3640(-GL)	10-11
1440	60	24	1	1	LCD	≤70 mVpp	<0.05%+15 mV <0.05%+18 mA	<400 μs	USB, RS485, (GPIB, LAN)	XLN6024(-GL)	10-11
1440	80	18	1	1	LCD	≤80 mVpp	<0.05%+20 mV <0.05%+7 mA	<400 μs	USB, RS485, (GPIB, LAN)	XLN8018(-GL)	10-11
1560	150	10.4	1	1	LCD	≤100 mVpp	<0.05%+75 mV <0.05%+10 mA	<400 μs	USB, RS485, (GPIB, LAN)	XLN15010(-GL)	10-11
1560	300	5.2	1	1	LCD	≤150 mVpp	<0.05%+150 mV <0.05%+5 mA	<400 μs	USB, RS485, (GPIB, LAN)	XLN30052(-GL)	10-11
1560	600	2.6	1	1	LCD	≤300 mVpp	<0.05%+300 mV <0.05%+2.6 mA	<400 μs	USB, RS485, (GPIB, LAN)	XLN60026(-GL)	10-11

*= Optional

Power Supplies
Selection Guide

Value: This class of DC power supplies is targeted towards users who need features not found in the basic line such as remote sense. Many models offer a programming interface, but programmability is often limited and not SCPI compliant. Speed and accuracy are less important. Ideal for most general purpose applications.

Value (DC)

Power (W)	Max. Voltage (V)	Max. Current (A)	Number of Outputs	Number of Ranges	Display (Meter)	Ripple & Noise	Remote Interface(s)	Model	Page
30	30	1	1	1	Dual 4-digit LED	1 mVrms	RS232	1739	14
90	18	5	1	1	Dual 3-digit VFD	≤1 mVrms	RS232, USB*	1785B	13
96	32	3	1	1	Dual 3-digit VFD	≤1 mVrms	RS232, USB*	1786B	13
108	72	1.5	1	1	Dual 3-digit VFD	≤1 mVrms	RS232, USB*	1787B	13
192	32	6	1	1	Dual 3-digit VFD	≤1 mVrms	RS232, USB*	1788	13
120	30 (Range 1), 60 (Range 2)	3 (Range 1), 2 (Range 2)	1	2	Dual 4-digit LED	≤1 mVrms	RS232	1737	14
198	60	3.3	1	1	4-digit LCD	≤25 mVpp	RS232, RS485*	1698	13
200	20	10	1	1	4-digit LCD	≤25 mVpp	RS232, RS485*	1696	13
200	40	5	1	1	4-digit LCD	≤25 mVpp	RS232, RS485*	1697	13
207	32 (A&B), 5 (Fixed)	3 (A&B), 3 (Fixed)	3	1	Quad 3-digit LED	≤1 mVrms	None	1672	14
300	35 (Range 1), 60 (Range 2)	10 (Range 1), 5 (Range 2)	1	2	Dual 4-digit LED	≤1 mVrms	RS232	1747	14
300	60	5	1	1	Dual 3-digit LED	≤50 mVpp	USB	1685B	15
360	36	10	1	1	Dual 3-digit LED	≤50 mVpp	USB	1687B	15
360	18	20	1	1	Dual 3-digit LED	≤50 mVpp	USB	1688B	15
399	32 (A&B), 5 (Fixed)	6 (A&B), 3 (Fixed)	3	1	Quad 3-digit LED	≤1, ≤4 mVrms	None	1673	14
600	15	40	1	1	Dual 3-digit LED	≤10 mVrms	None	1692	15
640	32	20	1	1	Dual 3-digit LED	≤1 mVrms	Analog**	1790	13
640	64	10	1	1	Dual 3-digit LED	≤1 mVrms	Analog**	1791	13
800	16	50	1	1	Dual 3-digit LED	≤1 mVrms	Analog**	1796	13
900	15	60	1	1	Dual 3-digit LED	≤40 mVpp	Analog**	1693	15
900	30	30	1	1	Dual 3-digit LED	≤40 mVpp	Analog**	1694	15
900	60	15	1	1	Dual 3-digit LED	≤100 mVpp	Analog**	1902	15
960	16	60	1	1	Dual 3-digit LED	≤50 mVpp	Analog**	1900	15
960	32	30	1	1	Dual 3-digit LED	≤50 mVpp	Analog**	1901	15
960	32	30	1	1	Dual 3-digit LED	≤1 mVrms	Analog**	1794	13
960	64	15	1	1	Dual 3-digit LED	≤1 mVrms	Analog**	1795	13

*= Optional **= analog interface, can be controlled remotely via external analog signal

Power Supplies
Selection Guide

Basic: These DC power supplies offer the best in simplicity with their easy-to-use functions. All supplies can be controlled from the front panel only, and many models come with analog meters. Ideal for students, hobbyists, service and repair personnel, and other users who don't need all the extras.

Basic (DC)

Power (W)	Max. Voltage (V)	Max. Current (A)	Number of Outputs	Number of Ranges	Display (Meter)	Model	Page
30	30	1	1	1	Dual analog	1710A	16
44	24 (A & B), 5 (Fixed)	0.5 (A &B), 4 (Fixed)	3	1	Dual analog	1651A	17
44	24 (A & B), 5 (Fixed)	0.5 (A &B), 4 (Fixed)	3	1	Dual 3-digit LED	1652	17
92	30 (A & B), 6.5***	2 (A &B), 5	3	1	Dual 4-digit LED	1760A	17
55	13.8 (Fixed)	4	1	Fixed	None	1680	17
166	13.8 (Fixed)	12	1	Fixed	None	1682A	17
90	18	5	1	1	Dual analog	1620A	16
90	18	5	1	1	Dual 3-digit LED	1621A	16
90	60	1.5	1	1	Dual 3-digit LED	1623A	16
90	30	3	1	1	Dual analog	1626A	16
90	30	3	1	1	Dual 3-digit LED	1627A	16
90	30	3	1	1	Dual analog	1730A	16
90	30	3	1	1	Dual 4-digit LED	1735A	16
98	30, 12 (Fixed), 5 (Fixed)	3, 0.5, 0.5	3	1	Dual 3-digit LCD	1670A	17
100 (max.)	60	5	1	Auto	Dual 4-digit LED	9110	17
108	36	3	1	1	LCD	1550	17
120	60	2	1	1	Dual analog	1711A	16
120	60	2	1	1	Dual 4-digit LED	1715A	16
160	16	10	1	1	Dual analog	1746B	16
158	30, 12 (Fixed), 5 (Fixed)	5, 0.5, 0.5	3	1	Dual 3-digit LCD	1671A	17
168	14*	12A @ 14V	1	1	Dual analog	1686A	17
198	60	3.3	1	1	Dual 3-digit LED	1667	16
200	20	10	1	1	Dual 3 1/2-digit LED	1665	16
200	40	5	1	1	Dual 3-digit LED	1666	16
210	35	6	1	1	Dual 4-digit LED	1743B	16
240	60	4	1	1	Dual analog	1740B	16
350	35	10	1	1	Dual analog	1744A	16
350	35	10	1	1	Dual 4-digit LED	1745A	16
242	35 (A & B), 6.5***	3 (A &B), 5	3	1	Dual 4-digit LED	1761	17
266	60 (A & B), 6.5***	2 (A &B), 5	3	1	Dual 4-digit LED	1762	17
386	15	28A @ 13.8V	1	1	Dual analog	1689	17
386	15	28A @ 13.8V	1	1	Dual 3-digit LED	1690	17

*= variable from 3 V to Vmax ***= variable, but range is limited

AC Power: These AC power supplies and AC transformers are geared towards users with unique AC power related applications.

AC Power

Power	Max. Voltage (V)	Max. Current (A)	Number of Outputs	Number of Ranges	Display (Meter)	Model	Page
155 W	117-124	1.25	1	1	None	1604A	18
300 W	0-150	2 (continuous)	1	1	Analog	1653A	18
450 W	0-150	4 (intermittent)	2	1	Analog	1655A	18
1500 VA	Low Range: 0-135 V_{RMS} High Range: 0-270 V_{RMS}	Low Range (135 V): 12 A_{RMS} (limited to 1500 VA) High Range (270 V): 6 A_{RMS} (limited to 1500 VA)	1	2	Digital	1657	18

Power Supplies
Performance (DC)

Model 9181

NEW

Model 9174

USB (standard) | LAN | GPIB | RS-485 | RS232 | CE

Programmable Dual-Range DC Power Supplies

The 9170/9180 series programmable DC power supplies offer industry leading performance, designed to meet the most demanding applications in R&D, design verification and production test. All 9 models deliver clean, stable and precise output power due to the supplies' exceptionally low ripple and noise, low temperature coefficient, excellent regulation and fast transient response time characteristics. Additionally, the 9170/9180 series offers unique features not typically found in other power sources on the market, such as versatile LED test modes, modular interface card slots, automatic range selection, and an optional 8-bit bidirectional digital I/O interface.

Output Rating	Number of Outputs	Weight	Dimensions	Model
0-10 V, 0-10 A / 0-20 V, 0-5 A	1	23.1 lbs (10.5 kg)	8.27" x 3.42" x 16.3" (210 x 87 x 415 mm)	9171
0-35 V, 0-3 A / 0-70 V, 0-1.5 A	1	23.1 lbs (10.5 kg)	8.27" x 3.42" x 16.3" (210 x 87 x 415 mm)	9172
0-10 V, 0-10 A / 0-20 V, 0-5 A	2	23.1 lbs (10.5 kg)	8.27" x 5.14" x 16.3" (210 x 130.5 x 415 mm)	9173
0-35 V, 0-3 A / 0-70 V, 0-1.5 A	2	23.1 lbs (10.5 kg)	8.27" x 5.14" x 16.3" (210 x 130.5 x 415 mm)	9174
0-18 V, 0-8 A / 0-36 V, 0-4 A	1	17 lbs (7.7 kg)	8.27" x 3.42" x 16.3" (210 x 87 x 415 mm)	9181
0-10 V, 0-20 A / 0-20 V, 0-10 A	1	26.5 lbs (12 kg)	8.27" x 5.14" x 16.3" (210 x 130.5 x 415 mm)	9182
0-35 V, 0-6 A / 0-70 V, 0-3 A	1	24.3 lbs (11 kg)	8.27" x 5.14" x 16.3" (210 x 130.5 x 415 mm)	9183
0-100 V, 0-2 A / 0-200 V, 0-1 A	1	23.1 lbs (10.5 kg)	8.27" x 5.14" x 16.3" (210 x 130.5 x 415 mm)	9184
0-400 V, 0-0.5 A / 0-600 V, 0-0.35 A	1	23.1 lbs (10.5 kg)	8.27" x 5.14" x 16.3" (210 x 130.5 x 415 mm)	9185

Features & Benefits

- Single and dual output models with up to 210 W output power
- Dual range output with automatic range selection *
- Front and rear panel output terminals for convenient wiring
- Front and rear panel remote sense terminals (except of 9173 and 9174)
- List mode for executing up to 10 stored test sequences with a maximum of 150 steps in total
- Overvoltage/overcurrent/ overtemperature protection (OVP/OCP/OTP) and key-lock function
- Store and recall up to 10 power settings
- SCPI compliant USB standard interface, RS232, GPIB & LAN, RS485 optional (Installation through modular interface slots)
- Fast transient response time of < 50 us most models
- Unique LED test modes for minimizing inrush current
- Control up to 31 power supplies from one PC synchronized via RS485 interface (option)
- Application software providing remote control capability included
- Programmable voltage and current slew rates
- Convenient voltage and current calibration via front panel
- LabVIEW™ drivers available for download

* all models except for high voltage models 9184 and 9185

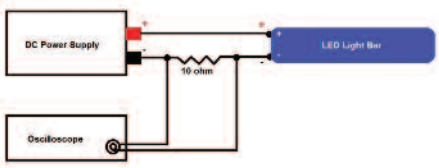
Rear Panel

Modular interface card slots

Only buy what you need, when you need it. Pick and choose from up to 4 different interface cards to install at time of purchase or upgrade later. Interface card options include: LAN and GPIB, Digital I/O and Analog Control, RS485, or RS232. Installation is quick and easy and does not require opening the instrument case (does not void warranty).

Test modes for LED and other special applications

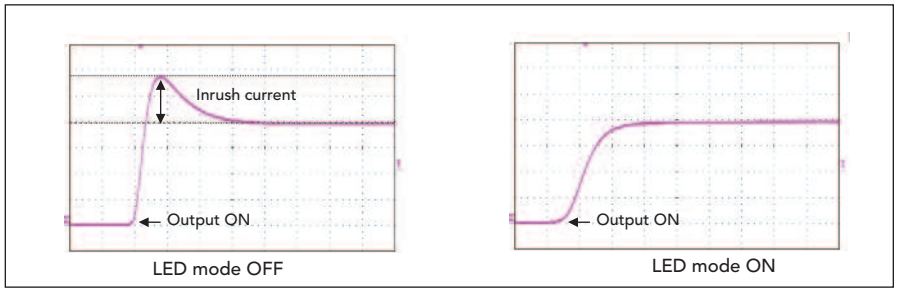
To address the growing LED market, the 9170/9180 series design incorporates special LED test modes which allow for efficient and safe electrical tests of LED panels. Powering LEDs with conventional power supplies will potentially cause permanent damage of the UUT or limit its lifespan due to excessive inrush current at power up and the non linear characteristics of the LED's I-V curve. These power supplies feature three distinct operating modes suitable for LED testing in a manufacturing or R&D environment and other special applications requiring a controlled rise time at power up without generating any inrush current.



Example LED test setup

LED Mode

With LED mode active, inrush current will be eliminated or minimized to protect the UUT.



LED mode OFF — LED mode ON

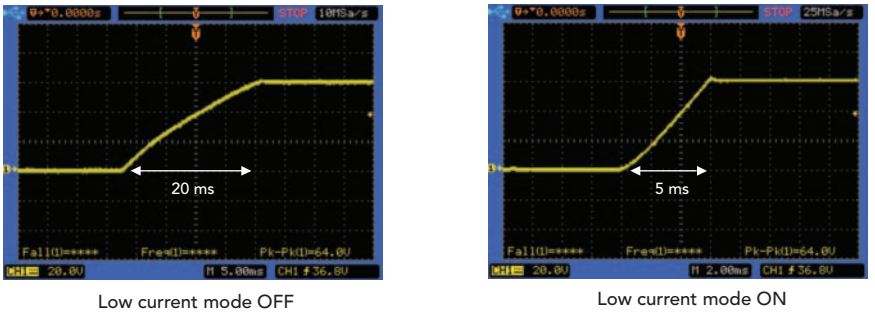
Current flow during power up with LED mode enabled

*Hot-swap Mode**

This mode is ideal for testing LED panels in a mass production environment. Throughput is significantly increased by eliminating the need to turn the power supply on/off between each test, while minimizing the time interval of the surge current sufficiently to protect the UUT. With the addition of a handler interface, each UUT can be "hot-swapped" to automatically connect to the test station interface.

*Low Current Mode**

This unique function enables the power supply to minimize the voltage rise time in a controlled manner. This mode is used when operating at a low current (< 1 A) and quick transitions from a high-to-low or low-to-high voltage are needed.



Low current mode OFF — Low current mode ON

Voltage rise time with and without low current mode enabled

* Hot-swap mode (hardware option) and low current mode for high voltage models 9184 and 9185 only.

Power Supplies
Performance (DC)

New Family of High Density System Power Supplies

The XLN series are compact, programmable, single-output DC power supplies, suitable for a wide range of applications. Comparable supplies from other manufacturers primarily address the ATE market only, while the XLN series are designed for both benchtop users and system integrators.

For benchtop applications, these power supplies offer built-in voltage and current meters displaying setting and output values concurrently, as well as an intuitive user interface with full keypad and rotary knob.

Free application software is available to provide remote control capabilities without the need for any computer programming. Standard USB & RS485 and optional GPIB & LAN interfaces combined with fast average command processing times of less than 50 ms make the XLN series ideal for ATE applications. The XLN series support SCPI IEEE488.2 and come with LabVIEW™ drivers.

USB (standard)
GPIB* & LAN*

*) -GL version

Features & Benefits

- Compact, high density, 1U package
- USB interface (standard) and GPIB/LAN (optional)
- External analog programming interface
- List mode for executing up to 150 step test sequences from instrument memory
- Fast command processing time < 50 ms
- Programmable voltage and current slew rate allow for "soft starting" of loads
- Built-in precise voltage and current measurements
- Internal memory stores up to 10 different instrument settings
- Extensive protection features: OVP, OCP, OPP, and key-lock function
- Control up to 31 XLN power supplies from one PC via the RS485 interface
- 100-240V universal AC input with power factor correction
- Timer-controlled output (1s to 100 hr)
- LabVIEW™ drivers available

	High Current Models	High Voltage Models
Auxiliary 5V/1A Output	√	--
Master/Slave Operation	Parallel/Series	Parallel Only
Display resolution for Voltage	1 mV	10 mV
Display resolution for Current	1 mA	1 mA
Analog programming	√	√
Analog monitoring	--	√

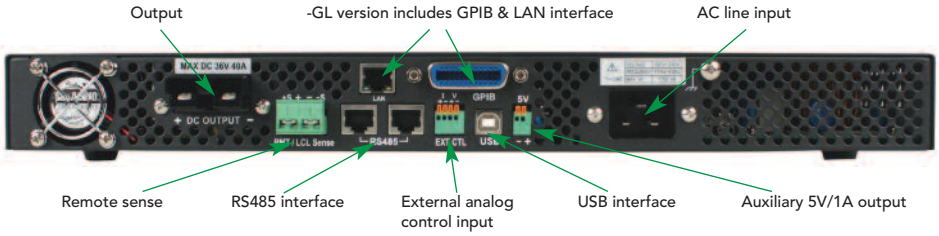
Rack Mount Kit (included)

Ears and Handles

	High Current				High Voltage		
Specifications	**XLN3640**	**XLN6024**	**XLN8018**	**XLN10014**	**XLN15010**	**XLN30052**	**XLN60026**
GPIB & LAN version	XLN3640-GL	XLN6024-GL	XLN8018-GL	XLN10014-GL	XLN15010-GL	XLN30052-GL	XLN60026-GL
Output Voltage	0-36 V	0-60 V	0-80 V	0-100 V	5 -150 V	5 - 300 V	5 - 600 V
Output Current	0-40 A	0-24 A	0-18 A	0-14.4 A	0.04 - 10.4 A	0.02 - 5.2 A	0.01 - 2.6 A
Dimensions (W x H x D)	16.5" x 1.7" x 17" (420 x 43.6 x 432 mm)				16.5" x 1.74" x 18.1" (420 x 44.2 x 460 mm)		
Weight	19.8 lbs (9 kg)						

three year warranty 3

High Current Models Rear Panel



High Voltage Models Rear Panel

NEW

Test Sequence Execution in List Mode

The list mode feature allows users to download a list of commands to the power supply's internal memory and execute them. A total of 150 steps can be allocated to each internal memory location, up to a maximum of 10 locations.

External Analog Programming Interface

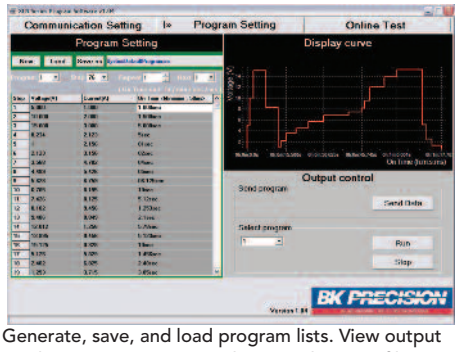
In addition to front panel or remote interface control, voltage and current values can also be programmed with an analog control signal.

Master/Slave Operation

All models support parallel output configuration while high current models also support series output configuration. Multiple units can be connected to operate in master or slave mode to control all connected units simultaneously. The RS485 interface is used for communication between the master and slave(s).

Application Software

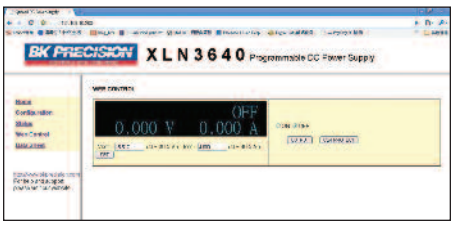
Included with the power supply is PC software for creating test sequences for execution in list mode via the GPIB or USB interface.



Generate, save, and load program lists. View output characteristic curves and export data to a file.

Web Server Interface

XLN series power supplies with GPIB/LAN interfaces provide a built-in web server. This allows users to configure, control, or monitor the basic settings of the power supply from a remote computer using a web browser.



Interface for controlling voltage, current, and output state.

NEW

1200W Multi-range 80V/60A DC Power Supply

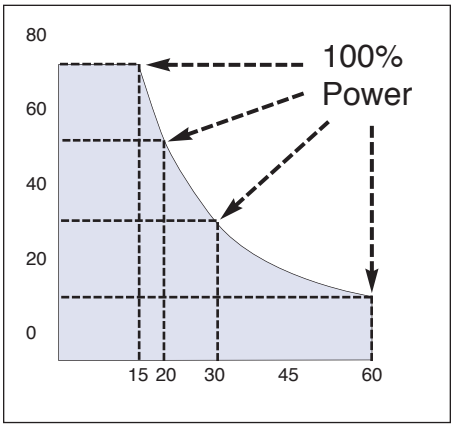
The 9115 can replace multiple supplies on your bench or in your rack. Unlike conventional supplies with fixed output ratings, the 9115 automatically recalculates voltage/current limits for each setting, providing 1200 W output power in any Volt/Amp combination within the rated voltage (80V) and current (60A) limits.

For benchtop applications, the 9115 provides a numerical keypad for direct data entry along with convenient cursors and analog style knobs to make small voltage or current changes. System integrators benefit from the standard USBTMC-compliant, USB, RS232, GPIB, and RS485 interfaces supporting SCPI commands.

Features & Benefits

- 80 V, 60 A, 1200 W max.
- Compact 1U package
- Standard USB, RS232, GPIB, and RS485 interfaces
- Analog interface with control and monitoring functions
- Adjustable rise and fall time
- Master/Slave mode for parallel and series operation

Multi-Range Operation



The multi-range feature of the 9115 power supply allows any combination of the rated voltage and current up to the maximum output power of 1200 W. For instance, the max current output at 20 V is 60 A.

Power Supplies
Performance

9150 series

Model 9130

The 9120A and 9150 series are high performance linear-regulated programmable DC power supplies that provide excellent performance and features not found in other power supplies of the same price category. These power supplies are designed for applications in design verification, production testing, or university labs where the user requires clean, reliable power combined with high resolution/accuracy and a fast transient response time.

Features & Benefits

- Very low ripple and noise due to linear regulation
- Excellent display resolution
- Fast transient response time (<150 µs all models)
- Programmable via USB and RS232 using SCPI compatible command set
- List mode operation for increased throughput
- Intelligent fan speed control for quiet operation
- For bench use or rack mountable
- Closed case calibration

The 9130 is a fully programmable triple output DC power supply delivering 0-30V/ 0-3 A on two outputs and 0-5 V/0-3 A on the third output. The 9130 is ideally suited for applications in electronic test, production, and service where multiple independent DC supplies are required and bench space is at a premium.

Features & Benefits (model 9130)

- 3 independent, fully programmable, floating and electrically isolated outputs
- Series or parallel operation to produce higher voltages or currents
- Display and adjust voltage and current settings for all 3 channels simultaneously
- Very compact footprint
- Programmable via USB to TTL interface
- OVP (overvoltage protection) and OTP (overtemperature protection)
- Application software for front panel emulation and simple test sequence generation included
- Closed case calibration

Specifications	9120A	9121A	9122A	9123A	9124	9150	9151	9152	9153	9130
Output Rating	0-32 V 0-3 A	0-20 V 0-5 A	0-60 V 0-2.5 A	0-30 V 0-5 A	0-72 V 0-1.2 A	0-5.2 V 0-60 A	0-20 V 0-27 A	0-30 V 0-18 A	0-60 V 0-9 A	0-30 V(1&2), 0-5 V(3) 0-3 A(1,2&3)
Load Regulation ±(% of output+offset)	<0.01%+2 mV <0.05%+1 mA		<0.01%+2 mV <0.05%+0.5 mA	<0.01%+2 mV <0.05%+1.5 mA	<0.01%+2 mV <0.05%+0.3 mA	<0.01%+0.5 mV <0.1%+10 mA	<0.01%+1 mV <0.1%+5 mA		<0.01%+1 mV <0.1%+2 mA	<0.01%+3 mV ≤0.1%+3 mA
Ripple & Noise	≤4 mVpp	≤3 mVpp	≤5 mVpp	≤4 mVpp	≤5 mVpp	≤0.005%+3 mVpp			≤0.005%+4 mVpp	≤1 mVrms/3 mVpp
Weight	19.8 lbs (9 kg)		21.2 lbs (9.6 kg)		19.8 lbs (9 kg)	63.9 lbs (29 kg)				19.8 lbs (9 kg)
Dimensions (WxHxD)	8.45" x 3.8" x 13.9" (214.5 x 88.2 x 354.6 mm)					16.88" x 3.47" x 18.06" (429 x 88.2 x 458.9 mm)				8.45" x 3.47" x 13.9" (214.5 x 88.2 x 354.6 mm)

Three year warranty 3

Model 1787B

Model 1696

Model 1795

Models 1785B, 1786B, 1787B, and 1788 are programmable DC power supplies offering a new level of "ease-of-use" and programmability in a low-cost package.

Features & Benefits

- Sixteen user programmable preset outputs
- Controllable output On/Off switch
- 10 mV/10 mA display resolution
- Bright VFD display
- Closed case calibration for simple, uninterrupted operation
- Low ripple and noise
- Excellent temperature stability
- Serial interface cable and remote control software included
- OVP, OCP, and OTP protection

The 1696, 1697, and 1698 DC switching mode programmable power supplies generate 200 watts of output power at a lower cost than traditional linear power supplies.

Features & Benefits

- RS232 and RS485 (adapter required) interface
- Application software providing data logging capability
- Output on/off button
- Over voltage protection
- Constant voltage and constant current (current limiting) operation
- Large easy-to-read LCD displays

The 1790 series are cost effective, high power, linear DC power supplies, ideal for telecom or any other applications requiring low noise output. Special features include the ability to set constant current with no load and remote sense to compensate for any wire loss.

Features & Benefits

- Constant voltage (CV) and constant current (CC) operation
- Remote programming
- Separate DC output on/off switch
- High stability and excellent regulation (±0.01%)

Power (W)	Voltage (V)	Current (A)	Interface	Weight	Dimensions (W x H x D)	Model
90	0-18	0-5	RS232, USB*	11 lbs (5 kg)	8.07" x 4.53" x 10.63" (205 x 115 x270 mm)	1785B
96	0-32	0-3	RS232, USB*	11 lbs (5 kg)		1786B
108	0-72	0-1.5	RS232, USB*	11 lbs (5 kg)		1787B
192	0-32	0-6	RS232, USB*	11 lbs (5 kg)		1788
198	1-60	0-3.3	RS232, RS485*	6.61 lbs (3 kg)	7.6 " x 3.85" x 8.46" (193 x 98 x 215 mm)	1698
200	1-20	10	RS232, RS485*	6.61 lbs (3 kg)		1696
200	1-40	0-5	RS232, RS485*	6.61 lbs (3 kg)		1697
640	0-32	0-20	Analog**	55 lbs (24.9 kg)	19" x 5.25" x 15.75" (483 x 133 x 400 mm)	1790
640	0-64	0-10	Analog**	55 lbs (24.9 kg)		1791
800	0-16	0-50	Analog**	62 lbs (28.1 kg)		1796
960	0-32	0-30	Analog**	62 lbs (28.1 kg)		1794
960	0-64	0-15	Analog**	62 lbs (28.1 kg)		1795

*= optional **= analog interface, can be controlled remotely via external analog signal

DC Power Supplies
Value (DC)

NEW Model 1739

NEW Model 1747

NEW Model 1673

The B&K Precision model 1739 is a high resolution, low current DC power source that exhibits excellent regulation and low ripple characteristics. This power supply is well suited for electrical and electronics applications requiring precise levels of low current including 4-20 mA current loop testing and calibration.

Features & Benefits

- Low current ripple and noise (<0.4 mArms)
- Low 1 mA settable current limit with 0.1 mA resolution
- Output on/off button
- LED indication for CV and CC modes
- Automatic recall of saved voltage and current settings upon power up
- RS232 interface
- Power-on self test

B&K Precision models 1737 and 1747 are general purpose dual range DC power sources. These power supplies can output higher voltage at a lower current range or higher current at a lower voltage range. Two 4-digit LED displays continuously monitor the output voltage and current. The power supplies can be operated locally from the front panel or remotely through the RS232 interface.

Features & Benefits

- Low ripple and noise
- Excellent regulation
- Constant voltage (CV) and constant current (CC) operation
- Two 4-digit LED displays provide good visibility in bright or low light
- RS232 interface
- Automatic recall of last settings on power up

B&K Precision's 1672 and 1673 are quad display triple output DC power supplies that provide two variable outputs and one fixed output. The variable outputs can work independently, or in series/parallel tracking mode. Conveniently adjust voltage and current with independent front panel knobs and bright quad LED display.

Common Features & Benefits

- Constant voltage (CV) and constant current (CC) operation
- Independent or series/parallel tracking mode operation to double voltage or current
- Adjustable current limiting
- Designed to operate continuously at rated output
- Short circuit protection, over voltage protection, reverse polarity protection

Voltage (V)	Current (A)	Display (meter)	Number of Outputs	Ripple & noise (mVrms)	Weight	Dimensions (W x H x D)	Model
0 - 30	0 - 0.9999	Dual 4-digit LED	1	1	9 lbs (4 kg)	5.5" x 6.2" x 12.5" (140 x 158 x 318 mm)	1739◆◆
0 -30 (Range 1), 0 - 60 (Range 2)	0 - 3 (Range 1), 0 - 2 (Range 2)	Dual 4-digit LED	1	1	10.5 lbs (4.8 kg)	5.5" x 6.2" x 12.5" (140 x 158 x 318 mm)	1737
0 -35 (Range 1), 0 - 60 (Range 2)	0 - 10 (Range 1), 0 - 5 (Range 2)	Dual 4-digit LED	1	1	30.2 lbs (13.7 kg)	10.75" x 6" x 14" (273 x 153 x 356 mm)	1747
0-32 (A&B), 5 (Fixed)	0-3 (A&B), 3 (Fixed)	Quad 3-digit LED	3	≤1	12.6 lbs (5.7 kg)	9" x 6.7" x 12.2" (230 x 170 x 310 mm)	1672◆◆
0-32 (A&B), 5 (Fixed)	0-6 (A&B), 3 (Fixed)	Quad 3-digit LED	3	≤1, ≤4	19.8 lbs (9.0 kg)	9" x 6.7" x 12.2" (230 x 170 x 310 mm)	1673

◆◆ = c UL us

Switching, High Current DC Power Supplies

Model 1693

Model 1900

B&K Precision models 1692, 1693, and 1694 are high current switching mode DC power supplies. Switching power supplies have the advantage of being lightweight and high in efficiency when compared to traditional linear mode power supplies. These power supplies provide a variable voltage output from 3V to 15V at 40A (model 1692), 1V to 15V at 60A (model 1693), or from 1V to 30V at 30A (model 1694).

Additionally, models 1693 and 1694 have remote sensing and analog remote control terminals. Remote sense compensates for voltage drop across the load leads. The analog remote control feature can be used to control the output voltage or turn the output on/off.

Features and Benefits

- Lightweight and compact
- Current foldback circuitry with illuminated indicator prevents overloading the power supply
- Overtemperature protection circuitry
- Overvoltage protection

B&K Precision models 1900, 1901, 1902, 1685B, 1687B and 1688B are laboratory grade switching DC power supplies with high current output in a small, lightweight form factor. They provide various configurations of high output voltage or high output current and feature rotary encoder control knobs, which make setting voltage and current fast and precise. Its dual action push button allows the user to set both coarse and fine, voltage and current levels.

Features and Benefits

- Automatic CV (Constant Voltage)/ CC (Constant Current) crossover operation
- Lightweight and compact
- Rotary encoder control for precise voltage and current setting
- Save up to 3 user-defined voltage and current presets for quick recall
- Analog remote control function
- Remote sensing terminal (model 1900 only)
- Overvoltage, overtemperature, and overload protection
- USB interface with PC software for remote control and external timed programming (models 1685B, 1687B, 1688B only)

Power (W)	Voltage (V)	Current (A)	Ripple & Noise (mVpp)	Weight	Dimensions (W x H x D)	Model
300	1-60	0-5	50	5.2 lbs (2.4 kg)	7.9" x 3.5" x 8.2" (200 x 90 x 208 mm)	1685B
360	1-36	0-10	50	5.2 lbs (2.4 kg)		1687B
360	1-18	0-20	50	5.2 lbs (2.4 kg)		1688B
600	3-15	40	10	7.7 lbs (3.5 kg)	8.67" x 4.33" x 11.82" (220 x 110 x 300 mm)	1692
900	1-15	60	40	12.8 lbs (5.8 kg)	8.66" x 4.33" x 14.17" (220 x 110 x 360 mm)	1693
900	1-30	30	40	12.8 lbs (5.8 kg)		1694
900	1-60	0-15	100	7 lbs (3.2 kg)	7.9 " x 3.5" x 10.8" (200 x 90 x 275 mm)	1902
960	1-16	0-60	50	7 lbs (3.2 kg)		1900
960	1-32	0-30	50	7 lbs (3.2 kg)		1901

Power Supplies
Basic (DC)

Single Output DC Power Supplies

Model 1627A

Model 1745A

Model 1735A

The 1620A series are rugged, compact, low-cost DC regulated power supplies providing clean and stable DC power.

Models 1665, 1666 & 1667 power supplies use new switching technologies to offer more power at a lower cost than traditional linear power supplies.

Common Features & Benefits

- Constant voltage (CV) and constant current (CC) operation
- Coarse and fine voltage controls
- Excellent line and load regulation
- Low ripple and noise

The 1740 series offers analog and digital displays, coarse and fine voltage and current controls.

Common Features & Benefits

- Coarse and fine voltage and current control
- Over voltage and short circuit protection
- Constant voltage (CV) and Constant Current (CC) operation

The 1710A and 1730A series are high quality, general purpose DC power sources. They provide exceptional accuracy with dual analog displays and coarse and fine voltage and current controls (1710A coarse/fine voltage control only)

Common Features & Benefits

- Coarse and fine voltage controls
- Excellent regulation
- Rugged and reliable design
- cUL certified

Output Voltage	Output Current	Ripple & Noise	Display (meter)	Weight	Dimensions (W x H x D)	Model
0-18 V	0-5 A	1 mVrms	Dual Analog	13.2 lbs (6 kg)	8.07" x 4.53" x 10.63" (115 x 205 x 270 mm)	1620A
0-18 V	0-5 A	1 mVrms	Dual 3-digit LED	16.3 lbs (7.4 kg)		1621A
0-60 V	0-1.5 A	1 mVrms	Dual 3-digit LED	16.3 lbs (7.4 kg)		1623A
0-30 V	0-3 A	1 mVrms	Dual Analog	13.2 lbs (6 kg)		1626A
0-30 V	0-3 A	1 mVrms	Dual 3-digit LED	16.3 lbs (7.4 kg)		1627A
1-20 V	0-10 A	20 mVpp	Dual 31/2-Digit LED	6.6 lbs (3 kg)	8" x 4.5" x 10.8" (203 x 114 x 274 mm)	1665
1-10 V	0-5 A	20 mVpp	Dual 3 Digit LED	6.6 lbs (3 kg)		1666
1-60 V	0-3.3 A	20 mVpp	Dual 3 Digit LED	6.6 lbs (3 kg)		1667
0-30 V	0-1 A	1 mVrms	Dual Analog	8 lbs (3.6 kg)	5.5" x 6.2" x 12.5" (140 x 158 x 318 mm)	1710A◆◆
0-60 V	0-2 A	1 mVrms	Dual Analog	12 lbs (5.4 kg)		1711A◆◆
0-60 V	0-2 A	1 mVrms	Dual 4-digit LED	12 lbs (5.4 kg)		1715A◆◆
0-30 V	0-3 A	1 mVrms	Dual Analog	10.5 lbs (4.7 kg)		1730A◆◆
0-30 V	0-3 A	1 mVrms	Dual 4-digit LED	10.5 lbs (4.7 kg)		1735A◆◆
0-60 V	0-4 A	1 mVrms (Typical)	Dual Analog	23 lbs (10.4 kg)	10.5" x 5.7" x 15" (267 x 145 x 381 mm)	1740B◆◆
0-35 V	0-6 A	1 mVrms (Typical)	Dual 4-digit LED	24 lbs (10.8 kg)		1743B
0-35 V	0-10 A	1 mVrms (Typical)	Dual Analog	31 lbs (14.1 kg)		1744A
0-35 V	0-10 A	1 mVrms (Typical)	Dual 4-digit LED	31 lbs (14.1 kg)		1745A
0-16 V	0-10 A	1 mVrms (Typical)	Dual Analog	20 lbs (9 kg)		1746B◆◆

◆◆ = c UL us

Model 1670A

Fixed DC Power Supplies

Models 1680 & 1682A

- Fixed 13.8 VDC output for automotive applications
- 6 A peak (1680), 15 A peak (1682A)
- Current foldback overload protection
- Thermostatically controlled cooling fan (Model 1682A)
- Convenient cigar lighter output (1680)

Models 1689 & 1690

- 1 to 15 V variable output
- 28 A @ 13.8 V
- Current foldback overload protection
- Thermostatically controlled cooling fan

Model 1760A

Triple Output DC Power Supplies

The 1651A and 1652 triple output DC power supplies offer two variable 0 - 24 VDC/ 0 – 500 mA outputs, and one fixed 5 VDC/ 0 – 4 A output in a compact package.

The 1760A, 1761, and 1762 triple output DC power supplies offer three independent outputs with two 4-digit LED displays and 10 mV/1 mA resolution.

Common Features & Benefits

- Independent or series tracking/parallel mode operation to double voltage or current
- Adjustable current limiting
- Short circuit protection, over voltage protection, reverse polarity protection

Models 1670A & 1671A

- 3-digit, triple output regulated DC power supplies

Switching DC Power Supply with USB Charger

The 1550 is a compact 108 watt power supply delivering 1-36 V and 0-3 A from its main isolated output.

Features & Benefits

- USB charging port on front panel
- Rear panel security loop
- Output On/Off control

Multi Range DC Power Supply

Unlike conventional power supplies with fixed output ratings, the 9110 is a new type of power supply that automatically recalculates voltage/current limits for each setting.

Features & Benefits

- 60 V/ 5 A, max 100 W output
- 10 mV/1 mA resolution over full range
- Bright, easy to read display
- Very compact size and lightweight

	Output Voltage	Output Current	Ripple & Noise	Meter Type	Weight	Dimension (W x H x D)	Model
Switching	1 - 36 VDC	0 - 3 A	±5 mVrms, ±50 mVpp	LCD	4.4 lbs (2 kg)	2.8" x 6" x 9.8" (71 x 152 x 249 mm)	1550
	3-14 VDC	12 A @ 13.8 V	≤10 mVrms	Precision Analog	12.1 lbs (5.5 kg)	8.5" x 4.9" x 11.5" (216 x 124 x 292 mm)	1686A
	1-15 V	28 A @13.8 V	5 mVpp	Precision Analog	19.9 lbs (9 kg)	9.84 x 5.5 x 8.86" (250 x 140 x 225 mm)	1689
	1-15 V	28 A @13.8 V	5 mVpp	Digital LED	19.9 lbs (9 kg)		1690
Triple Output	0-24 (A&B), 5 (Fixed)	0-0.5 (A&B), 4 (Fixed)	≤2 mVrms, <5 mVrms	Dual Analog	10.5 lbs (4.8 kg)	11.75" x 5.5" x 10.97" (298 x 140 x 264 mm)	1651A
	0-24 (A&B), 5 (Fixed)	0-0.5 (A&B), 4 (Fixed)	≤2 mVrms, <5 mVrms	Dual 3-digit LED	10.5 lbs (4.8 kg)		1652
	Main 0-30 VDC Fixed 12 VDC ±5% Fixed 5 VDC ±5%	0-3 A Main Fixed 0-500 mA continuous Fixed 0-500 mA continuous	≤5 mVrms	Dual 3-Digit LED	10.5 lbs (4.5 kg)	8.5" x 4.9" x 11.5" (216 x 124 x 292 mm)	1670A◆◆
	Main 0-30 VDC Fixed 12VDC ±5% Fixed 5 VDC ±5%	0-5 A Main Fixed 0-500 mA Fixed 0-500 mA	≤5 mVrms	Dual 3-Digit LED	14.3 lbs (6.5 kg)		1671A◆◆
	0-30 (A&B), 4-6.5	0-2 (A&B), 5	≤1 mVrms	Dual 4-digit LED	21 lbs (9.5 kg)	10.5" x 5.7" x 15" (267 x 145 x 381 mm)	1760A◆◆
	0-35 (A&B), 2-6.5	0-3 (A&B), 5	≤1 mVrms	Dual 4-digit LED	21 lbs (9.5 kg)		1761◆◆
	0-60 (A&B), 4-6.5	0-2 (A&B), 4	≤1 mVrms, ≤2 mVrms	Dual 4-digit LED	21 lbs (9.5 kg)		1762
Fixed	Fixed 13.8 V ±0.5 V	6 ADC peak, 4 ADC continuous	≤ 6 mVrms	--	6.5 lbs (2.9 kg)	6.31" x 3.62" x 6.75" (160 x 92 x 170 mm)	1680
	Fixed 13.8 V ±0.5 V	15 ADC peak,12 ADC continuous	≤ 10 mVrms	--	15 lbs (6.75 kg)	4.5" x 8.1" x 10.6" (115 x 205 x 270 mm)	1682A
Multirange	60 V	5 A	≤ 2 mVrms	Dual 4-digit LED	5.9 lbs (2.65 kg)	3.5" x 6.9" x 11.10" (88 x 175 x 282 mm)	9110

◆◆ = c UL us

Power Supplies
AC Power

NEW

Model 1657

Model 1655A

AC Power Source

The 1657 is an AC power source that provides high conversion efficiency and low distortion output. A built-in PFC provides an input power factor of 0.99 at full load. The AC source supplies up to 1500 VA through its universal line output terminal and can operate in one of two voltage ranges, 135 V or 270 V, with 0.1 V resolution.

The bright display constantly monitors the output voltage, current, power, and frequency, and also indicates the selected range and mode of operation. The front panel interface is easy-to-use and includes a control knob for quick setting of voltage and frequency parameters. The 1657 can also be controlled remotely via RS232 interface.

This 1500 VA rated AC power source is ideally suited for industrial product testing applications where power conversion or performance verifications is needed. The 19" rack-mountable design with front to rear airflow ventilation allows for a compact form factor in automated test environments.

Applications

- 50/60 Hz margin testing
- 400 Hz testing for avionics equipment
- Component testing
- Characterization of AC to DC converters

Features and Benefits

- Low distortion sinewave output with programmable frequency and voltage
- Two selectable output voltage ranges of 135 VAC or 270 VAC
- Output frequency adjustable from 45 Hz to 450 Hz in 0.01 Hz steps
- 0.1 V settable resolution
- Automatic protection against overload, short circuit, and over temperature
- Output ON/OFF switch
- Bright VFD display
- Remote programming through RS232 serial interface
- Input power factor of 0.99 allows for maximum power to be delivered from the AC outlet
- Standard 19" rack construction
- Conforms to EN55022, class A, safety standard EN60950

The 1653A and 1655A variable isolated AC power supplies are great for testing AC line voltage variations or any given product requiring AC power.

Model 1653A

- Variable isolated 0-150 VAC
- 2 A continuous output
- Displays voltage or current readings
- Isolation transformer to eliminate shock hazard while servicing "hot chassis" equipment

Model 1655A

- Variable isolated output 0-150 VAC
- 3 A continuous, 4 A intermittent output
- Built-in soldering iron temperature control (additional AC receptacle for soldering iron on rear panel)
- Expanded leakage scale
- Circuit breaker overload protection
- Displays V, A, VA, leakage

The 1604A (single output) isolation transformer provides the necessary safety factor for servicing any transformerless AC powered equipment.

Model 1604A

- Leakage: less than 0.1 mA
- Output Voltage: 117-124 V nominal (120 V input)
- Output Current: 1.25 A continuous

Power supply guide

Introduction to different power supply types and the technology behind them, plus related terms, specifications and usage examples.

http://goo.gl/pUVHg

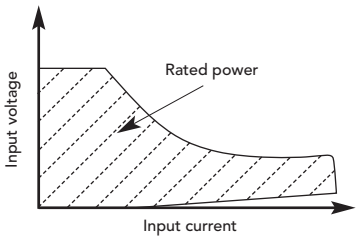
DC ELECTRONIC LOADS

Unique solutions for DC power testing

DC Electronic Loads
Selection Guide

	DC Electronic Loads							
	Category	Model #	Operation Voltage	Rated Current	Max. Power	Weight	Dimensions (W x H x D)	Page
	Basic Stand-alone	8540	0.1 V to 60 V	30 A	150 W	6 lbs (2.7 kg)	3.5" x 6.9" x 11.1" (88 x 175 x 282 mm)	20
8500 Series	Bench Programmable Stand-alone	8500	0.1 V to 120 V	30 A	300 W	11.5 lbs (5.2 kg)	8.46" x 3.46" x 14" (215 x 88 x 355 mm)	22-23
		8502	0.1 V to 500 V	15 A	300 W	11.5 lbs (5.2 kg)		
		8510	0.1 V to 120 V	120 A	600 W	31 lbs (14 kg)	16.9" x 3.46" x 14" (429 x 88 x 355 mm)	
		8512	0.1 V to 500 V	30 A	600 W	31 lbs (14 kg)		
	High Power Programmable Stand-alone	8514	0.1 V to 120 V	240 A	1200 W	31 lbs (14 kg)		
		8518	0.1 V to 60 V	240 A	1200 W	31 lbs (14 kg)		
		8520	0.1 V to 120 V	240 A	2400 W	66 lbs (30 kg)	17.48" x 7.09" x 21.22" (444 x 180 x 539 mm)	
		8522	0.1 V to 500 V	120 A	2400 W	66 lbs (30 kg)		
		8524	0.1 V to 60 V	240 A	5000 W	148 lbs (67 kg)	17.48" x 14.06" x 21.22" (444 x 357 x 539 mm)	
		8526	0.1 V to 500 V	120 A	5000 W	148 lbs (67 kg)		
MDL Series	Modular Programmable Performance	MDL200	0 V to 80 V	40 A	200 W	11 lbs (5 kg)	3.2' x 7.2" x 22.6" (82 x 183 x 573 mm)	21
		MDL252*	0 V to 80 V	20 A	250 W	11 lbs (5 kg)		
		MDL305	0 V to 500 V	20 A	300 W	11 lbs (5 kg)		
		MDL400	0 V to 80 V	60 A	400 W	11 lbs (5 kg)		
		MDL505	0 V to 500 V	30 A	500 W	11 lbs (5 kg)		
		MDL600	0 V to 80 V	120 A	600 W	11 lbs (5 kg)		
		MDL001	Mainframe, accepts 4 modules, 2400 W max			34 lbs (15.4 kg)	17.5" x 7.2" x 21.6" (445 x 183 x 549 mm)	
		MDL002	Mainframe extension, accepts 4 modules, 2400 W max			34 lbs (15.4 kg)		

* The MDL252 is a dual-channel 250 W load module supporting a unique flexible power configuration with up to 250 W per channel and up to 300 W total.



When selecting a DC load, it is important to consider not only voltage and current requirements, but also power ratings. The power used when testing must fall within the hashed region for the appropriate DC load. Some applications may require high voltage/low current and low voltage/high current, which a single load may not be able to handle. B&K Precision's broad range of DC loads will allow you to select the optimal model for your requirements.

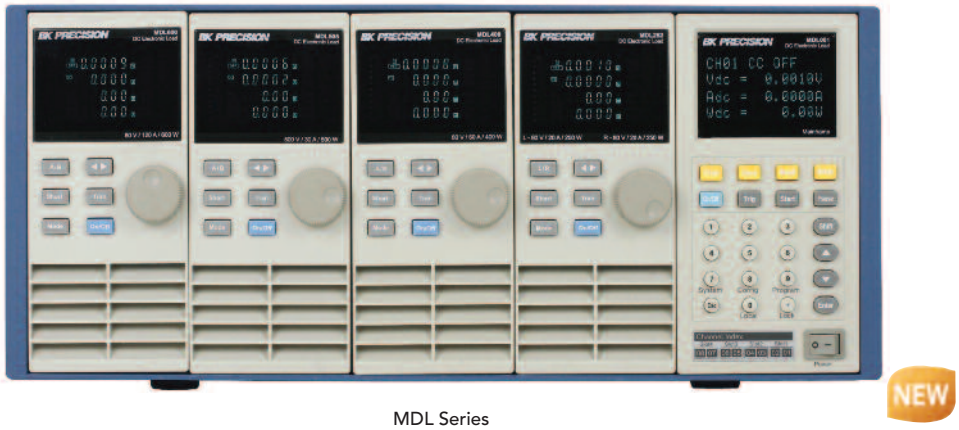
150 W DC Electronic Load

The 8540 DC electronic load is a compact, economically priced instrument that can reliably test a 5 V power supply to 30 A and do it continuously.

The 8540's performance is comparable to most stand-alone bench DC loads, yet it does the job at half the price and takes up half the space on your bench.

Features & Benefits

- Operates between 0-60 VDC, 1 mA-30 A (150 W maximum)
- Constant voltage (CV), constant current(CC), and constant resistance (CR) operation
- Very compact and lightweight
- Two current ranges: 3 A (1 mA resolution) and 30 A (10 mA resolution)
- Overcurrent and overvoltage protection
- Short mode to simulate shorts
- Save up to 160 instrument settings



MDL Series

Modular Programmable DC Electronic Loads

The MDL Series consists of a mainframe and six different modules ranging in power from 200 W to 600 W. Utilizing a modular, multi-channel design, the electronic load provides you with the flexibility to easily test a wide range of power sources from multi-output DC power supplies to batteries, fuel cells, and photovoltaic arrays. The mainframe has four slots and can be configured with any assortment of the modules up to 2400 W (up to 4800 W with mainframe extension).

The high-performance electronic load modules of the MDL series are capable of operating in CC (constant current), CV (constant voltage), CR (constant resistance), CW (constant power), and CZ (constant impedance) mode.

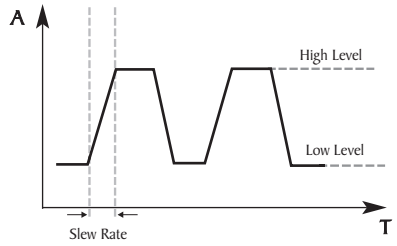
For remote communication, the electronic load provides LAN, USBTMC compliant USB, RS232, and GPIB standard interfaces that support SCPI command protocol.

Features & Benefits

- Power range up to 2400 W
- Voltage range up to 500 V
- Current range up to 120 A
- CC, CV, CR, CW, and CZ modes
- Adjustable slew rate in CC mode
- Removable modules for easy system configurability
- Bright VFD display for both mainframe and modules
- Transient mode up to 25 kHz
- List mode up to 100 kHz
- Measurement speed up to 50 kHz
- 101 memory areas to save/recall setting parameters
- Remote sensing
- LAN, GPIB, USBTMC compliant USB, and RS-232 interfaces with SCPI protocol support
- OVP/OCP/OPP/OTP protection
- LRV (Local Reverse Voltage) and RRV (Remote Reverse Voltage) protection

Transient operation

Transient operation enables the module to periodically switch between two load levels. A power supply's regulation and transient characteristic can be evaluated by monitoring the supply's output voltage under varying combinations of load levels, duty cycle, and slew rate. The MDL Series can simulate these conditions up to 25 kHz.



List mode

Not limited to just switching between two levels, list mode lets you generate more complex sequences of input changes with several different levels. Up to 7 groups of list files can be saved in the mainframe. Each list can contain up to 84 steps with a minimum width time of 20 µs per step.

Three year warranty 3

Specifications	MDL200		MDL252		MDL305		MDL400		MDL505		MDL600	
Power	200 W		250 W*		300 W		400 W		500 W		600 W	
Input Voltage	80 V		CH1 80 V, CH2 80 V		500 V		80 V		500 V		80 V	
Input Current	0-4 A	0-40 A	0-3 A	0-20 A	0-3 A	0- 20 A	0-6 A	0-60 A	0-3 A	0-30 A	0-12 A	0-120 A
Minimum Input Voltage	0.1 V	1 V	0.15 V	1 V	0.7 V	4.5 V	0.15 V	1.5 V	0.54 V	5.4 V	0.18 V	1.8 V
CC Mode Accuracy	±(0.05% +0.05%FS)	±(0.05% +0.05%FS)	±(0.05% +0.05%FS)	±(0.05% +0.05%FS)	±(0.05% +0.05%FS)	±(0.05% +0.05%FS)	±(0.05% +0.05%FS)	±(0.05% +0.05%FS)	±(0.05% +0.05%FS)	±(0.05% +0.05%FS)	±(0.05% +0.1%FS)	±(0.1% +0.1%FS)
CV Mode Accuracy	±(0.05% +0.02%FS)	±(0.05% +0.025%FS)	±(0.05% +0.02%FS)	±(0.05% +0.025%FS)	±(0.05% +0.02%FS)	±(0.05% +0.025%FS)	±(0.05% +0.02%FS)	±(0.05% +0.025%FS)	±(0.05% +0.02%FS)	±(0.05% +0.025%FS)	±(0.05% +0.02%FS)	±(0.05% +0.025%FS)

* The MDL252 is a dual-channel 250 W load module supporting a unique flexible power configuration. The user can allocate up to 250 W to either channel up to 300 W total (e.g. 50 W/250 W, 250 W/50 W, 150 W/150 W), thus replacing many dual-channel modules with fixed power distribution.

DC Electronic Loads
8500 Series

The 8500 Series programmable DC electronic loads can be used for testing and evaluating a variety of DC power sources. Their wide operating ranges of up to 500 V and 240 A, flexible operating modes and excellent measurement accuracy make the 8500 series well suited for characterizing DC power supplies, DC-DC converters, batteries, fuel cells, and solar cells.

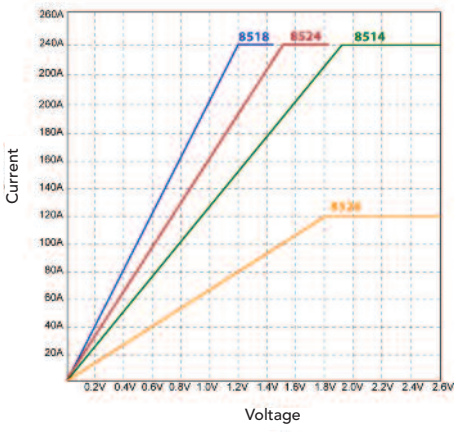
The loads can operate in CC, CV, CR, or CP mode while voltage/current or resistance/power values are measured and displayed in real time. Load terminals are isolated and floating. Extensive protection, including overtemperature, overpower, overvoltage, overcurrent and reverse polarity will help protect your valuable prototype.

These DC loads are easy to use. All parameters can be set quickly and precisely from the front panel, or programmed via RS232 or USB interfaces.

Low Voltage Operation

The 8500 series can operate well below 1 V, which is important for low voltage application such as fuel cell and solar cell testing. All models can regulate (provide a stable input) down to 0.1 V. Due to a particularly low input resistance, model 8518 can operate at full scale current of 240 A at 1.2 V (see image).

Low voltage operation graph



Typical minimum operating voltage at full scale current

8500	8502	8510	8512	8514	8518	8520	8522	8524	8526
1.05 V	3 V	1.8 V	3 V	1.92 V	1.2 V	10.8 V	3.6 V	1.56 V	1.8 V

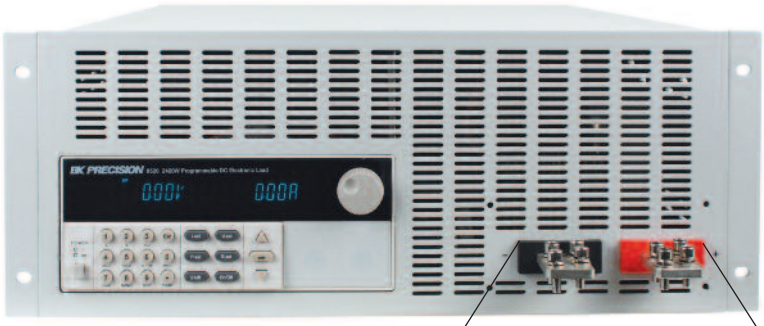
Features & Benefits

- Constant current (CC), resistance (CR), voltage (CV), and power (CP) operation
- Wide voltage and current range, 0 to 500 V, 0 to 240 A (5000 W max)
- Low minimum operating voltage of < 0.1 V and minimum input resistance of 5 mΩ (model 8518) allow the load to sink high current at low voltages, required for fuel and solar cell applications
- Selected models operate up to 500 V, suitable for high voltage applications
- Built-in transient generator
- Short circuit test
- Built-in high resolution (0.1 mA/1 mV) voltage and current meter (models 8500 & 8502)
- Bright, easy to read display (VFD technology)
- Overcurrent/overvoltage/overpower/overtemperature protection
- RS232 & USB to TTL serial converter cable and application software included
- List mode operation for increased throughput
- Battery testing mode to provide A*hr rating of battery (cut off voltage level is adjustable)
- Flexible triggering: create trigger events by front panel keystroke, back panel TTL signal, or software
- Remote voltage sensing to compensate for the effect of voltage drop in wires
- Store 25 instrument setups
- Thermostatically-controlled fans
- All models are rack mountable. Compact 300 W and 600 W models are ideal for bench use

DC Electronic Loads
8500 Series

300 W form factor

600 W - 1200 W form factor

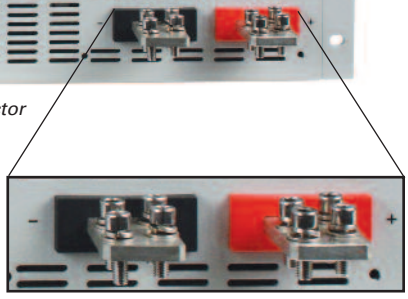


2400 W form factor

Hex-head screw terminals

Hex-head screw terminals allow for greater application of torque to reduce contact resistance between interface cables and terminal screws.

Present on high-power models 8518 through 8526.

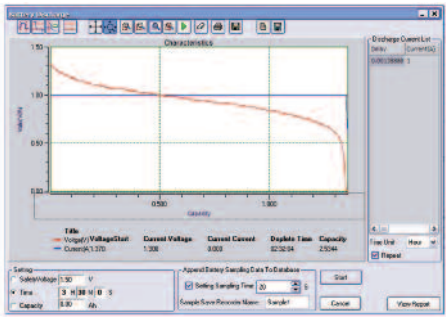


Applications:

- DC power supply testing
- Characterization of rechargeable batteries - battery test mode is provided that will measure the ampere*hour (Ah) characteristic of a battery
- Fuel and solar cell testing
- High voltage applications

Application Software

The included application software supports front panel emulation of the load and includes a battery test application which provides Ah rating of a battery and adjustable cut off voltage levels (safety voltage). Whether designing a device with Nickel-Metal Hydride or Lithium-Ion batteries, the 8500 series DC electronic loads have the capabilities to test their characteristics.



Example of battery discharge characteristics of a AA alkaline battery

List Mode

A list of command sequences can be stored in non-volatile memory and executed independently of a computer. Execution in list mode greatly reduces command processing time and computer interaction during product testing. The command sequence can be entered manually from the front panel or downloaded from a PC via RS232 or USB interface.

Transient Generator

The 8500 series offers a variable frequency generator that can be used in all operating modes. The DC load will toggle between two preset levels at a frequency between 0.1 Hz to 1 kHz, either continuously or controlled by a trigger.

Remote Control

These DC loads can be remotely controlled from any PC with USB or RS232 interface, allowing the user to fully program and monitor all parameters. An RS232 & USB to TTL serial converter cable is included. For users wanting to write their own custom software, LabVIEW drivers are available for download via the B&K Precision website.

Battery amp-hour discharge test using an 8500 series DC electronic load

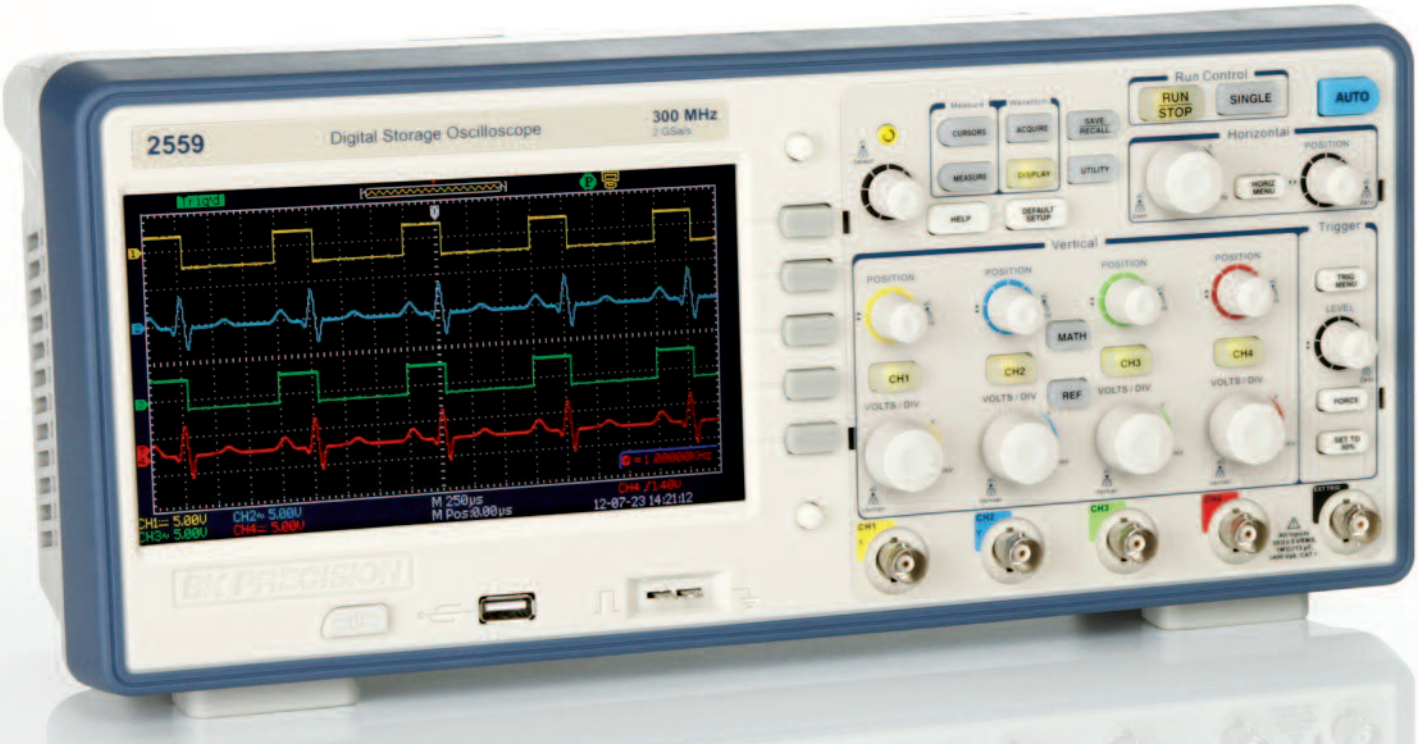
Application video demonstrating battery discharge testing using an 8500 series DC Electronic Load, and a sealed lead acid (SLA) battery.
http://goo.gl/mKdbG

Scan QR code to view video

DC electronic loads application note

Includes practical DC load applications including software example scripts plus detailed DC load performance verification procedures.

http://goo.gl/BN7r8



OSCILLOSCOPES

Signal analysis made easy

Digital Storage Oscilloscopes

Bandwidth	Sample Rate	Channels	Max. Memory Depth	PC Interface	USB host port	Display	Model	Page
25 MHz	500 MSa/s	2	32,000 points	USB device	√	5.7" Color	2530B	29
40 MHz	500 MSa/s	2	32,000 points	USB device	√	5.7" Color	2532B	29
60 MHz	1 GSa/s	2	2.4 Mpts	USB device	√	5.7" Color	2540B	26
100 MHz	1 GSa/s	2	2.4 Mpts	USB device	√	5.7" Color	2542B	26
60 MHz	1 GSa/s	2	2.4 Mpts	USB device	√	5.7" Color	2540B-GEN*	26
100 MHz	1 GSa/s	2	2.4 Mpts	USB device	√	5.7" Color	2542B-GEN*	26
70 MHz	2 GSa/s	2	24,000 points	USB device	√	7" Color	2552	28
70 MHz	2 GSa/s	4	24,000 points	USB device	√	7" Color	2553	28
100 MHz	2 GSa/s	2	24,000 points	USB device	√	7" Color	2554	28
100 MHz	2 GSa/s	4	24,000 points	USB device	√	7" Color	2555	28
200 MHz	2 GSa/s	2	24,000 points	USB device	√	7" Color	2556	28
200 MHz	2 GSa/s	4	24,000 points	USB device	√	7" Color	2557	28
300 MHz	2 GSa/s	2	24,000 points	USB device	√	7" Color	2558	28
300 MHz	2 GSa/s	4	24,000 points	USB device	√	7" Color	2559	28

* The 2540B-GEN and 2542B-GEN include a built-in 20 MHz AWG and 40 MHz AWG, respectively.

Analog Oscilloscopes

Bandwidth	Sweep Modes	Max. Sweep Rate	Delayed Dual/ Sweep TimeBase	Signal Delay Line	Component Tester	Z-Axis	Model	Page
30 MHz	Main, X-Y	0.1 µs/div	-	-	-	-	2121*	30
30 MHz	Main, X-Y	0.1 µs/div	-	-	-	-	2120B	30
30 MHz	Main, Mix, Delay, X-Y	0.1 µs/div	√	-	√	-	2125A	30
40 MHz	Main, X-Y	10 ns/div	-	-	-	-	1541D	30
60 MHz	Main, Mix, Delay, X-Y	0.1 µs/div	√	-	√	√	2160A	30
100 MHz	Main, Mix, Delay, X-Y	20 ns/div	√	√	-	√	2190B	30

All B&K Precision analog oscilloscopes are dual channel and have Video Sync (TV-V and TV-H).
*= Built-in 50 MHz frequency counter

Glossary of Terms

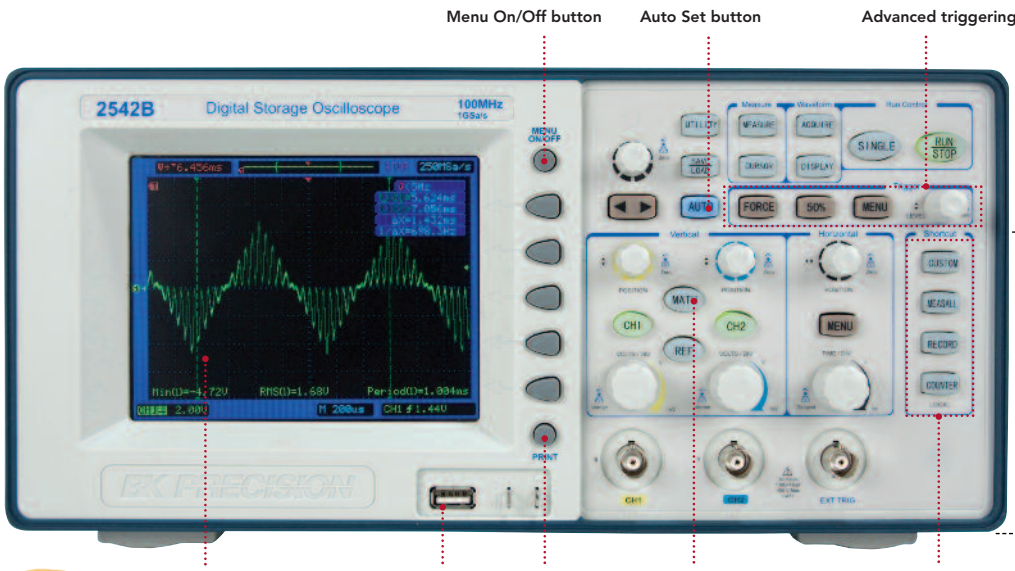
Bandwidth:
Bandwidth is one of the most important oscilloscope specifications as it represents the range in which an oscilloscope can display frequency accurately. It is defined by the frequency response curve when the attenuation is at the -3 dB mark. As a general rule of thumb, the oscilloscope's bandwidth should be at least five times the highest frequency of the signal under test.

Delayed Time Base:
A feature in some analog oscilloscopes that allows a single signal to be viewed at two different time bases with the second time base expanding a portion of the waveform and starting at some point after the main time base begins. This allows you to see events that are not visible with the main time base sweep.

Sampling Rate:
Specifies the rate at which a waveform or signal is sampled. Sampling is the process of converting a portion of the input signal into a number of discrete electrical values for the purpose of storage, display or further processing. The unit of measure is samples per second (Sa/s).

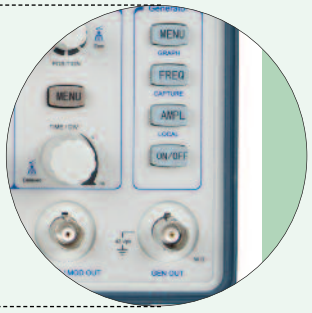
Sweep Rate:
Rate at which a sweep generator repeats a sweep cycle.

Oscilloscopes
Digital Storage Oscilloscopes



NEW

Built-in arbitrary waveform generator (models 2540B-GEN and 2542B-GEN only)



Optimize your workspace and increase productivity with the unique combination of a DSO and a built-in AWG.

The 2540B, 2542B, 2540B-GEN, and 2542B-GEN dual channel 60 MHz and 100 MHz digital storage oscilloscopes deliver performance and value, all in one portable solution. Maximize productivity using extensive features such as digital filtering, waveform recorder, pass/fail limit testing, and automatic measurements. These oscilloscopes offer powerful tools in a small affordable package with deep waveform memory up to 2.4 Mpts plus LAN and USB PC interface. The 2540B-GEN and 2542B-GEN models include a built-in function/arbitrary waveform generator (AWG).

Features and Benefits

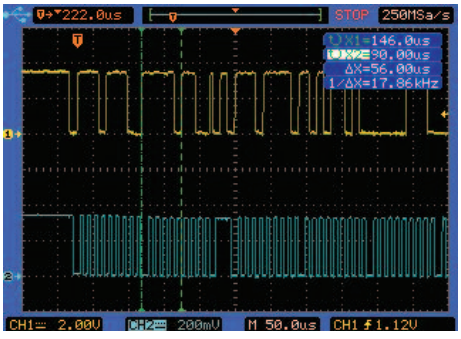
- 60 MHz (2540B and 2540B-GEN) and 100 MHz (2542B and 2542B-GEN) bandwidth, 1 GSa/s sample rate
- Deep waveform memory up to 2.4 Mpts
- FFT plus three additional math functions
- Built-in context sensitive help system
- Edge, pulse width, and video triggering
- For educators - ability to disable the Auto set button
- PC software that lets you remotely control the oscilloscope and capture, save, and analyze waveform data
- Front panel USB port for convenient storing and recalling of waveform data, setups, and screenshots on a USB flash drive
- LAN interface enables users to capture screenshots from any standard web browser

WaveXpress™ Compatible

Web-Enabled

LAN interface for easy screen capturing at a user-configurable refresh rate with a web browser. A GUI simulating the front panel provides full DSO control.

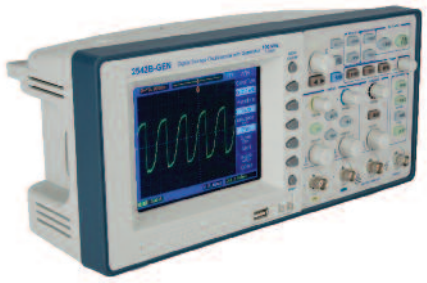
Deep Memory - 2.4 Mpts



Beneficial for applications such as I2C serial data streams, deep memory lets you capture waveforms in high resolution while maintaining a high sample rate over a longer period of time.

Specifications	2540B	2542B	2540B-GEN	2542B-GEN
Bandwidth	60 MHz	100 MHz	60 MHz	100 MHz
Built-In AWG	-	-	20 MHz	40 MHz

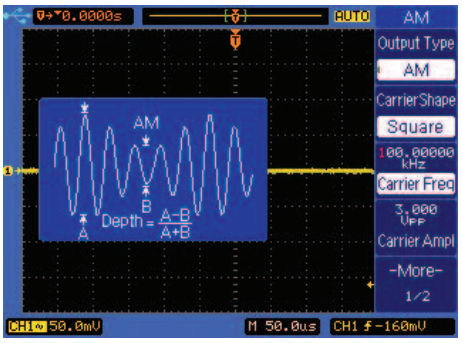
Function/Arbitrary Waveform Generator Features (2540B-GEN and 2542B-GEN)



Great for education labs, research, and manufacturing environments, the 2540B-GEN and 2542B-GEN help save bench space and cost by combining 2 instruments in 1.

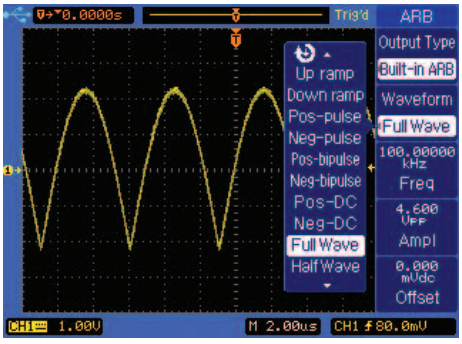
- 1 µHz to 20 MHz Sine Output (2540B-GEN)
  1 µHz to 40 MHz Sine Output (2542B-GEN)
- 1 µHz to 20 MHz Square Output
- 1 mHz to 10 MHz Pulse Output
- Frequency Sweep and Burst Mode
- Output protected against short circuit

Graphical Help Feature



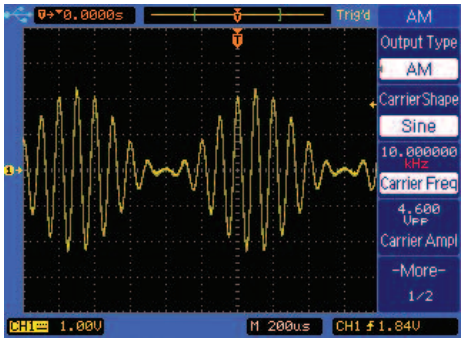
Display a graphical illustration explaining the parameters of the built-in arbitrary waveforms and modulation schemes. This is a convenient tool for students and new users.

30 Built-In Arbitrary Waveforms



Take advantage of the generator's already built-in waveforms that fit your application.

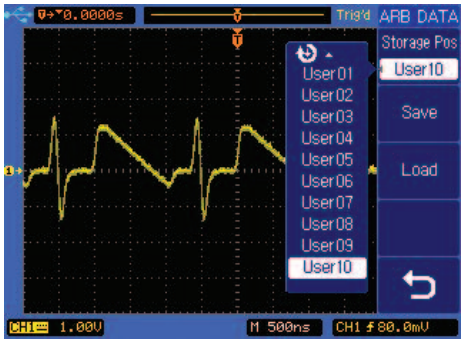
Wide Array of Modulation Schemes



The built-in arbitrary waveform generator is capable of many different types of modulation for various applications. Modulate your waveforms with AM, FM, FSK, PSK, and PWM modulation schemes and use any of the 30 built-in waveforms as the modulating waveform.

Capture and Storage Function

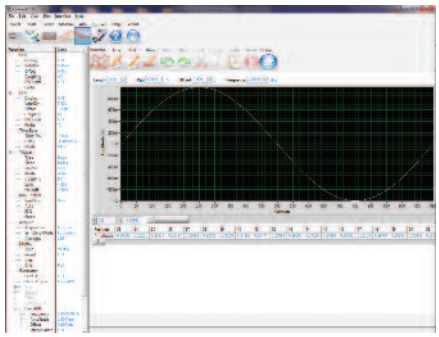
Quick and easy single-button capture function lets you acquire and store your signal directly from the oscilloscope's channels to the generator's internal memory. Not only can CH1 and CH2 signals be captured, but math functions applied to the channels can also be captured and stored.



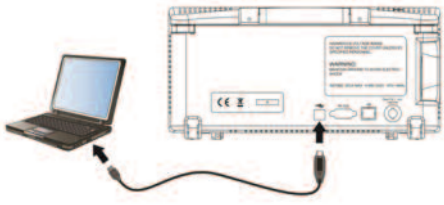
Store user arbitrary waveforms internally (up to 10 waveforms) or externally as an ARB or CSV file to a USB flash drive.

Multiple Ways to Interface

Save and load arbitrary waveform data in CSV format from a USB flash drive.



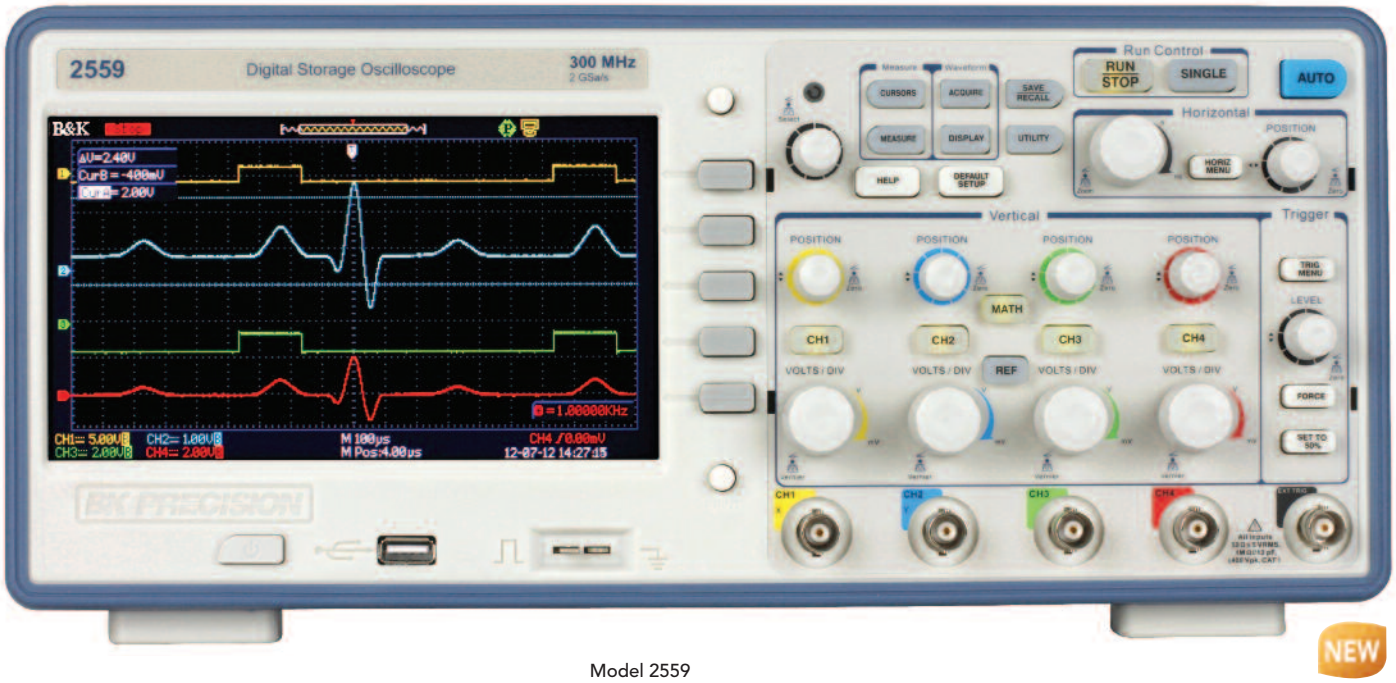
Generate, edit, and upload arbitrary waveforms to the scope using the intuitive Comsoft PC software.



Remotely connect to the scope and download waveform data from custom software using SCPI commands.

Oscilloscopes

Digital Storage Oscilloscopes



Model 2559

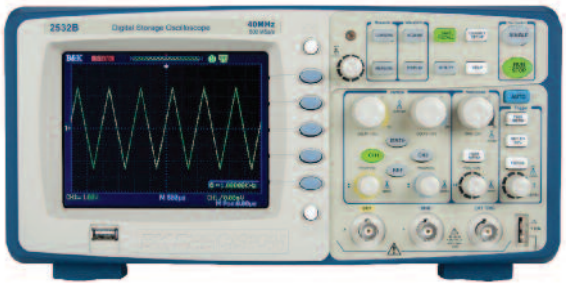
The 2550 Series digital storage oscilloscopes provide high performance and value in 2-channel and 4-channel configurations. With bandwidth from 70 MHz to 300 MHz and 2 GSa/s sample rates, these oscilloscopes offer 24 kpts/Ch waveform memory, 32 automatic measurements, advanced triggering capabilities, math functions, and PC connectivity via LAN and USB. Engineered for best visibility, the 2550 series' 7" TFT display offers a significantly larger viewing area than typical economy oscilloscopes (5.7").

Specifications	2552	2553	2554	2555	2556	2557	2558	2559
Bandwidth	70 MHz		100 MHz		200 MHz		300 MHz	
Real Time Sampling Rate	2 GSa/s (interleaved), 1 GSa/s (per channel)							
Channels	2	4	2	4	2	4	2	4
Display	7" widescreen Color LCD							
Memory Depth	24 kpts max. (interleaved, single CH operation), 12 kpts (each channel)							
I/O Interface	USB host port, USB device port, LAN							
Vertical Resolution	8 bits							
Vertical Sensitivity	2 mV – 5 V/div							
Weight	9.5 lbs (4.3 kg)							
Dimensions (W x H x D)	13.23" x 4.65" x 5.98" (336 x 118 x 152 mm)							

three year warranty 3

Features and Benefits

- Bandwidth up to 300 MHz
- 2 GSa/s sample rate
- 4-Channel acquisition (on select models)
- Large 7" widescreen color display
- FFT including four additional math functions - Add, Subtract, Multiply, and Divide
- 32 automatic measurements
- USB host port for remote PC control
- Front panel USB device port for saving and recalling waveform setups, data, and screenshots on a USB flash drive
- 50 Ω input coupling
- PC control through EasyScope software
- Advanced tools include digital filters with adjustable limits, pass/fail testing and waveform recorder mode
- Multi language user interface and context sensitive help



Model 2532B

NEW

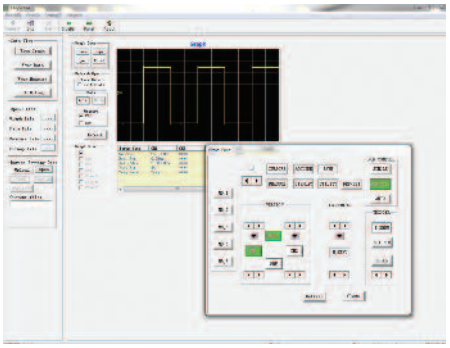
The 2530B and 2532B combine performance and value all in one portable solution. With advanced triggering capabilities, long waveform memory up to 32,000 pts/Ch, and extensive features such as pass/fail limit testing, digital filtering, waveform recorder, and automatic measurements, these oscilloscopes offer powerful tools in a small affordable package.

These oscilloscopes are ideal for applications in education, troubleshooting, debugging, service and repair.

Communication

RS232 and USB ports enable remote PC control via EasyScope PC software.

PC Connectivity



The included EasyScope software provides seamless integration between the oscilloscope and PC. Capture and transfer waveforms, screen images, setups and measurement results to a Windows® PC via the USB host port on the back of the instrument. A USB device port on the front allows for quick and easy screen saving.

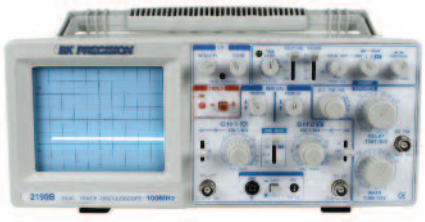
Features and Benefits

- 25/40 MHz bandwidth (2530B / 2532B)
- 500 MSa/s sample rate
- Bright 5.7" color display
- Long waveform memory up to 32,000 pts/Ch (when time base is 50 ns or 25 ns and maximum data depth mode is enabled)
- For educators - ability to disable the Auto Set button
- Five different math functions – Add, Subtract, Multiply, Divide, and FFT
- Versatile triggering capabilities including pulse width, line-selectable video, slope, and alternating trigger
- 32 automatic measurements
- Advanced tools include digital filter with adjustable limits, pass/fail testing, and waveform recorder mode
- 12 different language user interfaces and context sensitive help
- USB host connectivity for remote PC control through EasyScope PC software
- USB device port for convenient storing and recalling of waveform data, setups, and screenshots on a USB flash drive

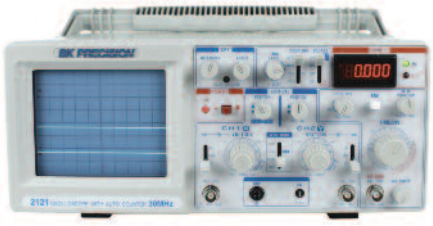
Specifications	2530B	2532B
Bandwidth	25 MHz	40 MHz
Real Time Sampling Rate	Single Channel: 500 MSa/s Two Channels interleaved: 250 MSa/s (for timebase faster than 250 ns/div)	
Channels	2	
Display	5.7" Color LCD	
Record Length	32,000 points when time base is 50 ns or 25 ns at maximum data depth (16,000 points for 50 s - 100 ns time base), 16,000 points for dual channel operation	
I/O interface	USB device port for connection to PC	
Vertical Resolution	8 bits	
Vertical Sensitivity	2 mV - 10 V /div (1-2-5 order)	
Weight	5 lbs (2.3 kg)	
Dimensions (W x H x D)	12" x 6.3" x 5.2" (305 x 160 x 133 mm)	

Oscilloscopes
Analog Oscilloscopes

B&K Precision offers a wide selection of analog oscilloscopes. From entry-level to high performance, these oscilloscopes provide many features at a low cost.



Model 2190B



Model 2121

Common Features & Benefits

- Dual or single trace operation
- 5 mV/div sensitivity
- Calibrated 23-step time base with X10 magnifier
- Video sync trigger
- Alternate/chop sweep
- Sum and difference capability

Additional Features

- Built-in component tester (2125A and 2160A only)
- Bandwidth limiter (2190B only)
- Built-in 50 MHz frequency counter (2121 only)
- Delayed time base*
- Main, Mix, Delay, X-Y sweep modes*

*2125A, 2160A, and 2190B only

How to use an oscilloscope and a signal generator as a component tester / curve tracer

This video demonstrates how a digital oscilloscope and a signal generator can be used to obtain signatures of various passive components such as capacitors and resistors.
http://goo.gl/yYLSj

Scan QR code to view video

Specifications	2120B	2121	2125A◆	1541D◆	2160A◆	2190B◆
Bandwidth	30 MHz	30 MHz	30 MHz	40 MHz	60 MHz	100 MHz
Vertical Sensitivity	5 mV/div to 5 V/div, 1 mV/div to 1 V/div at X5 MAG					
Attenuator	10 calibrated steps in 1-2-5 sequence. Vernier Control provides fully adjustable sensitivity between steps; range 1/1 to at least 1/3.					
Vertical Accuracy	±3%, 5 mV to 5 V/div; ±5% at X5 MAG					
Rise Time	12 ns *	12 ns *	12 ns *	8.8 ns *	5.8 ns *	3.5 ns *
Sweep Modes	Main, X-Y	Main, X-Y	Main, Mix, Delay, X-Y	Main, X-Y	Main, Mix, Delay, X-Y	Main, Mix, Delay, X-Y
Sweep Time	0.1 µs/div to 2 s/div			0.2 µs/div to 0.2 s/div	0.1 µs/div to 2 s/div	20 ns/div to 5 s/div
Sweep Magnification	X10 ±10%					
Weight	17.2 lbs (7.8 kg)	16.8 lbs (7.6 kg)				18.7 lbs (8.5 kg)
Dimensions	14.5" x 7" x 17.25" (370 x 180 x 440 mm)	12.8" x 5.2" x 15.6" (324 x 132 x 397 mm)				

*= Overshoot <5%

◆ = Three year warranty

c UL us Applies to all analog oscilloscopes except model 2121

SIGNAL GENERATORS

Stimulus signals for design and test

Signal Generators
Selection Guide

Arbitrary/Function Generators

Type	Model	Frequency Range	Number of Channels	Arbitrary			Modulation		Output Range (into 50 Ω)	Interface	Special Features	Page
				Waveform Length (points)	Sample Rate	Vertical resolution	AM / FM	Other				
Performance Arbitrary & Function Generator*	4075	1 uHz-25 MHz	1	400000	100 MS/s	14 bit	int/ext	FSK	10 mV-10 Vpp	RS232, GPIB option	marker	34
	4078	1 uHz-25 MHz	2	400000	100 MS/s	14 bit	int/ext	FSK	10 mV-10 Vpp	RS232, GPIB option	marker	34
	4076	1 uHz-50 MHz	1	4000000	125 MS/s	14 bit	int/ext	FSK	10 mV-10 Vpp	GPIB, RS232	marker, summing input	34
	4079	1 uHz-50 MHz	2	4000000	125 MS/s	14 bit	int/ext	FSK	10 mV-10 Vpp	GPIB, RS232	marker, summing input	34
Basic Arbitrary & Function Generator**	4052	1 uHz-5 MHz	2	16000	125 MS/s	14 bit	int/ext	ASK, FSK, PM DSB-AM, PWM	CH1: 2 mVpp-10 Vpp CH2: 2 mVpp-3 Vpp	USB, GPIB option	counter, color display	36
	4053	1 uHz-10 MHz	2	16000	125 MS/s	14 bit	int/ext	ASK, FSK, PM DSB-AM, PWM	CH1: 2 mVpp-10 Vpp CH2: 2 mVpp-3 Vpp	USB, GPIB option	counter, color display	36
	4045B	0.01 Hz-20 MHz	1	1000	50 MS/s	12 bit	int/ext		10 mV-10 Vpp	USB	counter	38
	4084AWG	1 uHz-20 MHz	1	16000	200 MS/s	10 bit	int/ext	FSK, PSK	1 mV-10 Vpp	RS232	counter	37
	4054	1 uHz-25 MHz	2	16000	125 MS/s	14 bit	int/ext	ASK, FSK, PM DSB-AM, PWM	CH1: 2 mVpp-10 Vpp CH2: 2 mVpp-3 Vpp	USB, GPIB option	counter, color display	36
	4055	1 uHz-50 MHz	2	16000	125 MS/s	14 bit	int/ext	ASK, FSK, PM DSB-AM, PWM	CH1: 2 mVpp-10 Vpp CH2: 2 mVpp-3 Vpp	USB, GPIB option	counter, color display	36
	4086AWG	1 uHz-80 MHz	1	16000	200 MS/s	10 bit	int/ext	FSK, PSK	1 mV-10 Vpp	RS232	counter	37

Note: All generators produce basic function generator waveforms sine, square, triangle, TTL/CMOS and ramp/pulse and complex waveforms including noise, sin(x)/x, exponential and Gaussian
* = True AWG capable of generating almost any waveform combined with full function generator functionality (two in one)
** = Primarily DDS function generators with basic Arb. capability in terms of memory space, vertical resolution, and maximum output frequency

Function Generators

Type	Model	Frequency Range	Waveforms		Modulation		Sweep	Burst	Output Range into 50 Ω	Interface	Special Features	Page
			Basic *)	Other	AM/FM	Other	lin/log					
Digital (DDS)	4005DDS	1 Hz-5 MHz	√	-	-	-	-	-	10 mV-10 Vpp	-	-	38
	4007B	0.1 Hz-7 MHz	√	-	-	-	√	-	10 mV-10 Vpp	-	-	38
	4013B	0.1 Hz-12 MHz	√	-	-	-	√	-	10 mV-10 Vpp	-	-	38
	4014B	0.01 Hz-12 MHz	√	-	int/ext	-	√	-	10 mV-10 Vpp	USB	counter	38
	4040B	0.01 Hz-20 MHz	√	-	int/ext	-	√	√	10 mV-10 Vpp	USB	counter	38
	4084	1 uHz-20 MHz	√	noise, complex	int/ext	FSK, PSK	√	√	1 mV-10 Vpp	RS232	counter	37
	4085	1 uHz-40 MHz	√	noise, complex	int/ext	FSK, PSK	√	√	1 mV-10 Vpp	RS232	counter	37
	4086	1 uHz-80 MHz	√	noise, complex	int/ext	FSK, PSK	√	√	1 mV-10 Vpp	RS232	counter	37
	4087	1 uHz-120 MHz	√	noise, complex	int/ext	FSK, PSK	√	√	1 mV-10 Vpp	RS232	counter	37
Analog	4010A	0.2 Hz-2 MHz	√	-	-	-	-	-	100 mV-10 Vpp	-	-	40
	4001A	0.5 Hz-4 MHz	√	-	-	-	√	-	100 mV-10 Vpp	-	-	40
	4003A	0.5 Hz-4 MHz	√	-	-	-	√	-	100 mV-10 Vpp	-	counter	40
	4011A	0.5 Hz-5 MHz	√	-	-	-		-	100 mV-10 Vpp	-	-	40
	4012A	0.5 Hz-5 MHz	√	-	-	-	√	-	100 mV-10 Vpp	-	-	40
	4017A	0.1 Hz-10 MHz	√	-	-	-	√	-	100 mV-10 Vpp	-	-	40
	4040A	0.2 Hz-20 MHz	√	-	int/ext	-	√	√	100 mV-10 Vpp	-	counter	40

Note: *) basic waveforms include sine, square, triangle, TTL/CMOS and ramp/pulse

Pulse Generators

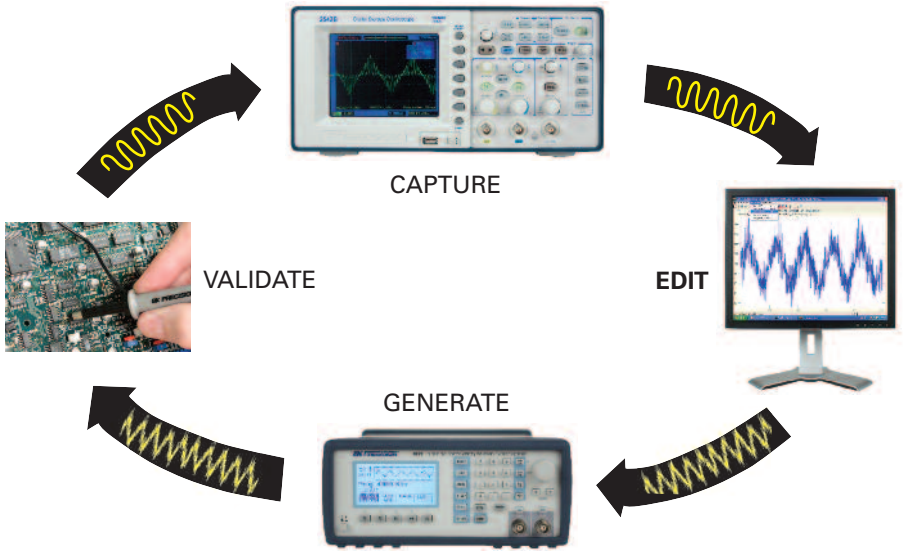
Type	Model	Frequency Range	Transition Time	Width	Delay	Number of Outputs	Page
Analog	4030	0.1 Hz-10 MHz	12 ns	50 ns - 50 ms	0 - 2 us	1	41
Digital	4033	0.1 Hz-50 MHz	6 ns - 100 ms	10 ns - 10 s	0 - 10 s	1	39
	4034	0.1 Hz-50 MHz	6 ns - 100 ms	10 ns - 10 s	0 - 10 s	2	39

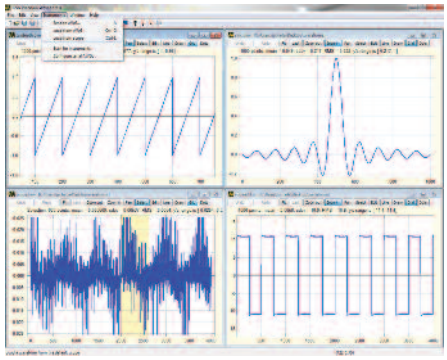
Other Signal Sources

Type	Model	Frequency Range	Waveforms		Modulation	Output Range	Page
			Sine	Square	AM		
Audio	3001	20 Hz-150 kHz	√	√	-	0-1.2 Vpp	41
Signal	3003	0.1 Hz-10 MHz	√	√	-	0-4.5 Vpp (no load)(sine), 5 Vpp (no load)(square)	41
	2005B	100 kHz-150 MHz	√	-	int/ext	100 mVrms max.	41

WaveXpress™

WaveXpress is a comprehensive stand-alone application with several transformation options, allowing users to easily create complex waveforms. Modify a waveform downloaded from a scope or construct a new waveform using powerful and intuitive editing tools. Quickly download them to your AWG and begin testing your circuits and systems moments later. The WaveXpress program can also be used for general-purpose waveform editing without requiring any instruments to be connected to the computer.





Waveform creation capabilities

Features & Benefits

- Import waveforms from B&K scopes, AWGs, or load them from CSV or text files
- Autoscan function automatically detects instruments connected via RS232, USB, or GPIB
- Generate waveforms from scratch with drawing and editing tools.
- Insert commonly used waveforms and different types of noise
- Numerous transformations for changing a waveform. User-defined transformations can be added in the python programming language
- Multi-language support: additional languages can be added by the user
- Fast zooming and panning with mouse
- Dialog settings are remembered for faster repetitive work
- Undo/redo functions allow quick experimentation

Waveforms	Filters	Noise Distributions	Transformations	Supported File Formats	Supported Interfaces
Sine Square Triangle Sawtooth Pulse Sinc Noise Exponential Rise/Decay	Savitzky-Golay smoothing Low-pass Band-pass High-pass Notch	Beta Chi Square Exponential F Gamma Laplace Lognormal Logistic Normal Rayleigh Uniform Weibull	Linear (ax + b) Gaussian noise Clip Resample Convert to DC (max, min, average, or RMS) Signum Absolute value Sort ordinates Reverse ordinates (mirror about vertical axis) Differentiate Integrate Make positive Normalize amplitude to unity Zero amplitude Negate (mirror about horizontal axis)	CSV, ASCII, proprietary BKW file	RS232/USB/ GPIB

Supported Instruments	
Oscilloscopes	2534, 2540, 2542, 2540B, 2542B 2540B-GEN, 2542B-GEN 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559
AWGs	4045B, 4075, 4075GPIB, 4076, 4078, 4078GPIB, 4079

Download Information:
www.bkprecision.com/WaveXpress

System Requirements:
Windows XP or later
NI-VISA Run-Time Engine*

*Download from the NI website link below:
http://joule.ni.com/nidu/cds/view/p/id/1606/lang/en

Signal Generators

25 MHz & 50 MHz Arbitrary Waveform/ Function Generators

Model 4078

The 407x generators combine a full-featured DDS function generator with an arbitrary waveform generator (AWG). This gives the user uncommon flexibility to generate any waveform that can be described by a sampled set of data within the generator's capabilities. AWGs have revolutionized the generation of stimulus signals by greatly reducing the need to build special circuitry to generate custom signals. This reduces costs enormously because multiple design/build/debug steps are avoided. Now, a user can write software to generate the needed waveform shapes or use the simple tools to graphically construct special waveforms. With today's accelerated development schedules, can you afford not to take advantage of this powerful, enabling technology?

AVEXPRESS™ Compatible

Common Features & Benefits

- High performance and cost effectiveness in a compact package
- Standard function generator capabilities (sine, square, triangle waves) with DDS accuracy and precision. Also included are noise, sync, and exponential waveforms
- Frequencies from 1 µHz (sine and square), and amplitudes from 10 mVpp to 10 Vpp into 50 Ω
- Up to four million points (4076, 4079) or four-hundred thousand points of AWG memory -- the largest waveform memories for instruments in their class. The memory is not partitioned -- use it all to store one waveform or many waveforms at different locations

Common Features & Benefits

- Sweep, gated, burst, and modulation (AM/FM/FSK) capabilities standard
- AWG provides built-in pulse, ramp, triangle, noise, sinc, exponential, and Gaussian noise waveforms. You can utilize these waveforms to build your own arbitrary waveform using the front panel controls
- Audio frequency sine waves have a very low distortion level of -65 dBc
- Versatile noise generation: In Arb mode you can conveniently add noise to your waveform directly from the front panel and precisely adjust the scale of the noise amplitude. Unlike other generators that only produce a noise waveform, this feature allows you to choose between generating a noise waveform or adding noise to an existing waveform
- RS232 and GPIB support
- The units are easily programmable with popular programming languages using a SCPI syntax

Specifications	4075	4078	4076	4079
Number of channels	1	2	1	2
Frequency (sine)	1 uHz - 25 MHz		1 uHz - 50 MHz	
Flatness	±0.2 db @ 1 MHz, ±1 db @ 25 MHz		±0.1 db @ 10 MHz, ±1 db @ 50 MHz	
Sample rate	100 MS/s		125 MS/s	
Waveform length (points)	2 to 400,000		2 to 4,000,000	
Vertical resolution	14 bit			
Computer interface	RS232 standard, GPIB optional		RS232 and GPIB standard	
Weight	6.6 lbs (3 kg)		5.5 lbs (2.5 kg)	
Dimensions (W x H x D)	8.4" x 3.5" x 12" (213 x 88 x 300 mm)		8.4" x 3.5" x 11.8" (213 x 88 x 300 mm)	

Three year warranty 3

Flexible Interface

- The back panel has a 10 MHz reference signal input/output. This allows you to synchronize multiple generators to another generator or to a lab standard signal. Precisely adjust the output signal's phase with respect to this reference signal
- Marker pulses (50 Ω TTL output) can be output at any point on an arbitrary waveform for user-defined durations. This lets you synchronize other equipment with your arbitrary waveforms. Trigger other generators phase-locked to the main generator to generate multiple waves with precise timing and phase relationships, or use the marker pulse to trigger a scope to let you view a system's response at a precise point
- Create, edit and upload complex waveforms with WaveXpress™ software

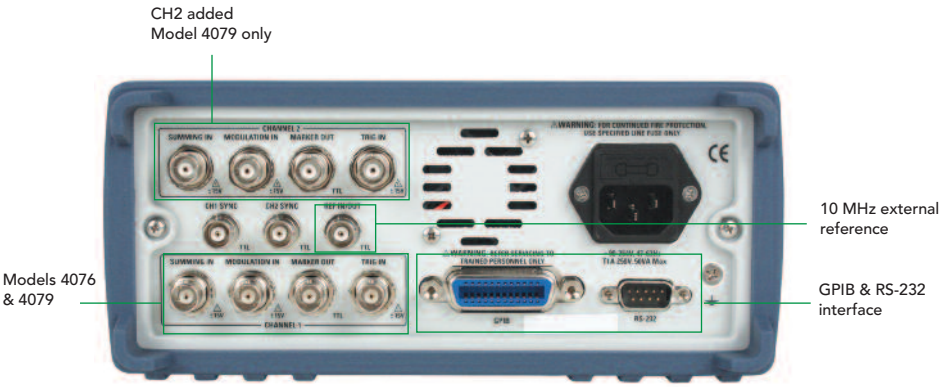
Intuitive User Interface

- Back-lit LCD panel packs a wealth of information into a small space and can be easily read in a dark environment
- Intuitive layout of panel and screen menus
- Make parameter adjustments with an analog-style knob -- or enter numbers directly using the keypad. Enter frequency or period, whichever is more convenient. Use Vpp, Vrms, or dBm for amplitude (4076/4079). Left-right arrow keys let you choose which digit to adjust with the knob

Dual Channel Models (4078 & 4079)

Features & Benefits

- Both channels offer full functionality. All waveform parameters such as frequency, amplitude, and offset can be set independently
- Synchronize both output signals to the same clock signal (external or internal) and precisely adjust the phase relationship between the two signals
- Economical baseband I/Q signal source
- Saves costs and bench space



Model 4079 (rear view)

Function & arbitrary generator guide

DDS function generator principle of operation, wealth of usage examples and tips, FAQs and glossary.

http://goo.gl/Q4YoA

How to use marker function for triggering and synchronizing signals

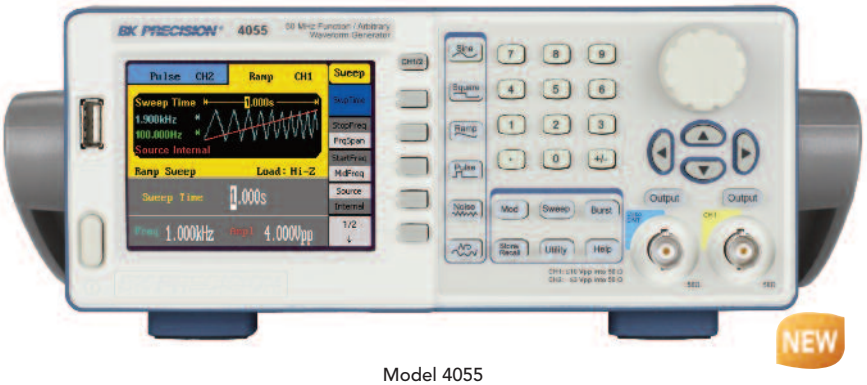
This feature of our 407x series allows users to generate a positive TTL level output signal at a specified point in an arbitrary waveform. Useful for applications requiring signal synchronization.
http://goo.gl/LybTV

Scan QR code to view video

Signal Generators

4050 Series

Dual Channel Function/Arbitrary Waveform Generators



Model 4055

The 4050 Series Dual Channel Function/Arbitrary Waveform Generators are capable of generating stable and precise sine, square, triangle, pulse, and arbitrary waveforms. With easy-to-read color displays and an intuitive user interface with numeric keypad, these instruments offer plenty of features including linear/logarithmic sweep, built-in counter, extensive modulation and triggering capabilities, a continuously variable DC offset, and a high performance 14-bit, 125 MSa/s arbitrary waveform generator. The main output voltage can be varied from 0 to 10 Vpp into 50 ohms (up to 20 Vpp into open circuit) and the secondary output can be varied from 0 to 3 Vpp into 50 ohms (up to 6 Vpp into open circuit).

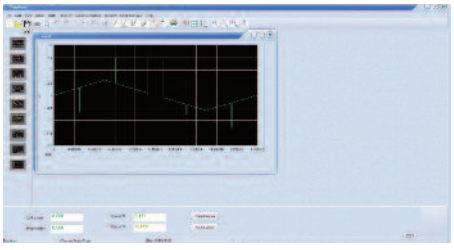
Model	4052	4053	4054	4055
Sine frequency range	1 μHz – 5 MHz	1 μHz – 10 MHz	1 μHz – 25 MHz	1 μHz – 50 MHz
Square frequency range	1 μHz – 5 MHz	1 μHz – 10 MHz	1 μHz – 25 MHz	

Three year warranty 3

Features & Benefits

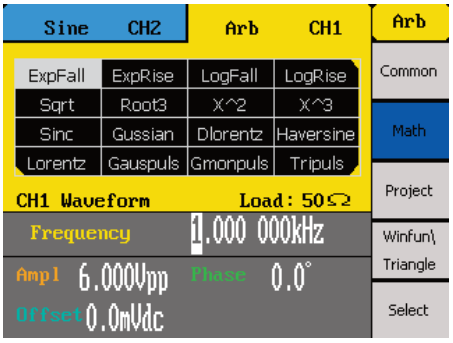
- 14-bit, 125 MSa/s, 16k point arbitrary waveform generator
- Two independent channels with individual output ON/OFF buttons
- Large 3.5-inch LCD color display with waveform preview
- Linear and logarithmic sweep
- AM, DSB-AM, ASK, FM, FSK, PM, and PWM modulation functions
- Variable DC offset
- Adjustable duty cycle
- Internal/external triggering
- Gate and burst mode
- 48 built-in predefined arbitrary waveforms
- Store/recall up to 10 instrument settings and 10 arbitrary waveforms
- Built-in counter
- USB device interface and front panel USB host port
- GPIB connectivity with optional USB-to-GPIB adapter
- SCPI-compliant command set
- Short circuit protection on output

Generate waveforms with ease



The provided waveform editing software can be used to create point-by-point arbitrary waveforms via freehand or waveform math functions. A standard USB interface on the rear panel allows users to easily interface with a PC to load these arbitrary waveforms into the instrument.

Arbitrary waveform generation



All models in the 4050 series have non-volatile memory to create, store, and recall up to 10 different arbitrary waveforms of up to 16,000 points each. Users can also output any of the 48 built-in predefined arbitrary waveforms.

Synchronization and external triggering

Use the external 10 MHz clock input to synchronize your signals to a master time base. The Sync output generates a TTL pulse for synchronization to a channel's frequency. An external trigger connector is also available for inputting or outputting trigger signals.

Signal Generators

4080 Series

Programmable DDS Function Generators

Model 4087

B&K Precision's 4080 series consists of laboratory-quality DDS function generators featuring 1 µHz to 120 MHz output and amplitudes of 1 mVpp to 10 Vpp into 50 Ω (reduced output above 40 MHz). Besides providing sine, square, triangle, ramp, and pulse waveforms, there are 19 other built-in specialized waveforms.

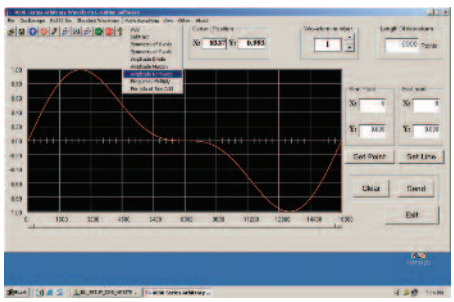
Model 4087 (rear view)

The 4084AWG and 4086AWG are laboratory-grade DDS function generators with basic arbitrary waveform capability. They produce sine waves up to 20 MHz (4084AWG) or 80 MHz (4086AWG) and can also generate 26 other built-in waveforms. The arbitrary waveform generator can provide eight waveforms with up to 16,000 points each with 10-bit vertical resolution.

AM/FM/FSK/PSK modulation types are provided, along with linear/log sweep, burst (up to 10,000 cycles), and gate capabilities. Ten instrument setup states can be stored in non-volatile memory. Setup parameters can be entered with a keypad or a knob. A serial port provides programmability with SCPI-compatible syntax.

Features & Benefits

- Low distortion sine waves (≤ 0.1% THD for 20 Hz to 100 kHz)
- 1 ppm frequency stability
- AM/FM/FSK/PSK modulation
- Easy-to-read VFD (vacuum fluorescent display)
- Linear and logarithmic sweep
- 100 MHz counter/totalizer with 50 mVrms sensitivity (input on rear panel)
- 0.1% to 99.9% duty cycle positive or negative pulses (below 10 kHz)
- Frequency range for complex (arbitrary) waveforms is 1 µHz to 100 kHz
- Output ±DC voltages from millivolt levels with 1 µV resolution up to 10 V with 1 mV resolution
- RS232 interface for remote control using SCPI-compatible commands
- 10 instrument states can be stored in non-volatile memory



Arbitrary Waveform Generation Software (4084AWG & 4086AWG)

Specifications	4084	4084AWG	4085	4086	4086AWG	4087
Sine	1 uHz - 20 MHz		1 uHz - 40 MHz	1 uHz - 80 MHz		1 uHz - 120 MHz
Square	1 uHz - 20 MHz		1 uHz - 40 MHz			
Amplitude (into 50Ω)	1 mV ~ 10 Vpp			≤40 MHz: 1 mV ~ 10 Vpp ≥40 MHz: 1 mV ~ 2 Vpp		≤40 MHz: 1 mV ~ 10 Vpp ≥40 MHz: 1 mV ~ 3 Vpp
Arbitrary Waveform Generator	--	10-bit, 200 MSa/s, 16k points	--	--	10-bit, 200 MSa/s, 16k points	--
Weight	6.6 lbs (3 kg)					
Dimensions (W x H x D)	10" x 3.93" x 14.56" (255 x 100 x 370 mm)					

Three year warranty

Signal Generators
DDS Function Generators

Model 4005DDS

Model 4013B

Model 4045B

The 4005DDS is a versatile 5 MHz function generator using a DDS (direct digital synthesis) design. This model is great for education and other applications that need basic waveform generation.

Features & Benefits

- Sine, square, and triangle waveforms up to 5 MHz
- Number pad for quick input of frequency
- Adjustable DC offset
- Adjustable duty cycle
- Front panel push button and pull knob can attenuate output by up to 40 dB

The 4007B, 4013B, 4014B, 4040B, and 4045B DDS function generators are capable of generating stable and precise waveforms. All models provide variable output amplitudes from 0 to 10 Vpp into 50 Ω and a continuously variable DC offset to inject signals into circuits at the correct bias level. Standard features include an intuitive menu-driven front panel keypad, rotary control knob, adjustable duty cycle, and comprehensive short circuit and overvoltage output protection. The 4045B adds a 12-bit, 50 MSa/s, 1k point arbitrary waveform capability with arbitrary waveform editing software provided.

Common Features

- Sine, square, and triangle waveforms
- Bright LCD display with waveform preview
- Linear and logarithmic sweep
- Store and recall instrument settings
- Output On/Off button

Additional Features (4014B/4040B/4045B)

- AM/FM modulation
- Low-jitter square wave generation for simulating reliable clock signals, generating triggers, or validating serial data buses
- 12-bit, 50 MSa/s, 1k point arbitrary waveform generator (4045B)
- Internal/external triggering
- Gate and burst mode (4040B and 4045B)
- Built-in counter
- USB interface and SCPI-compliant command set
- Remote control application software provided

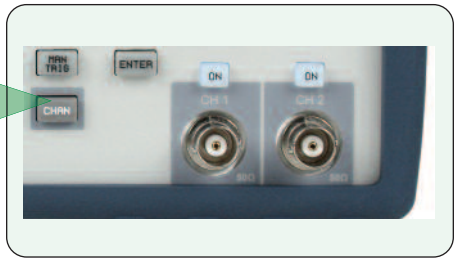
Specifications	4005DDS	4007B◆	4013B◆	4014B◆	4040B◆	4045B◆
Frequency (sine & square)	1 Hz - 5 MHz	0.1 Hz - 7 MHz	0.1 Hz - 12 MHz	0.01 Hz - 12 MHz	0.01 Hz - 20 MHz	0.01 Hz - 20 MHz
Output range (into 50 Ω)	10 mV - 10 Vpp					
Flatness	±0.3 dB to 1 MHz, ±1 dB to 5 MHz	±1 dB to 7 MHz	±1 dB to 12 MHz	±0.5 dB to 1 MHz, ±1 dB to 12 MHz	±0.5 dB to 1 MHz, ±1 dB to 20 MHz	
Arbitrary Waveform Generator	--	--	--	--	--	12-bit, 50 MSa/s, 1k point
Variable Duty Cycle	20% - 80% to 3 MHz for square	20% - 80% to 1 MHz for square		20% - 80% to 2 MHz for square, 1% - 99% in 1% steps for triangle		
Weight	5.05 lbs (2.3 kg)	4.41 lbs (2 kg)		5.51 lbs (2.5 kg)		
Dimensions (W x H x D)	11" x 4" x 11.7" (279.4 x 101.6 x 297.2 mm)	8.4" x 3.5" x 8.3" (213 x 88 x 210 mm)				8.39" x 3.46" x 8.27" (213 x 88 x 210 mm

◆ = three year warranty 3

NEW

GPIB

RS232



50 MHz Programmable Pulse Generators

The 4033 and 4034 are high performance programmable pulse generators ideal for testing digital systems and circuits based on TTL, CMOS, or ECL technologies. Both instruments generate clean and accurate pulses at up to 6 digits resolution with a repetition rate up to 50 MHz, variable pulse widths from 10 ns to 10 s, and pulse delays from 0 ns to 10 s. Output levels are adjustable from -10 V to +10 V, with pulse amplitudes settable from 0.1 Vpp to 10 Vpp into a 50 ohm load.

All parameters, modes, and functions are programmable via the front panel or remote control commands. Additionally, the pulse generators provide selectable complementary pulse and double pulse generation in continuous, triggered, gated, and counted burst modes.

Features & Benefits

- Repetition rate of 0.1 Hz to 50 MHz
- Flexible trigger modes: Continuous, Triggered (internal, external, manual), Gated Burst and External Width
- Pulse width programmable from 10 ns to 10 s
- Transition times (rise and fall times) variable from 6 ns to 100 ms
- Programmable delay and double pulse
- Predefined amplitude levels for ECL, TTL, and CMOS signals
- Store up to 99 different test setups with auto retention of last power down setup
- Pulse amplitudes up to 10 Vpp into 50 Ω output
- Programmable via GPIB and RS-232
- SCPI compatible

Dual-Channel Model 4034

Users can save cost and bench space with two independent channel outputs. Both channels offer full functionality and all parameters such as pulse width and transition time can be set individually. The channels can also be synchronized with the push of a button.

Applications

- Automatic Test Equipment (ATE)
- Avionics and radar testing
- Switching power supply testing
- Characterization of active components

Specifications	4033	4034
Channels	1	2
Frequency	0.1 Hz – 50 MHz	
Period	40 ns to 10 s (25 MHz to 0.1 Hz repetition rate)	
Width	10 ns to (Period – 10 ns)	
Delay	0 ns to (Period – Width – 10 ns)	
Duty Cycle	1 to 99%	
Amplitude	0.1 V to 10 Vpp into 50 Ω load (20 Vpp max into open circuit)	
Transition Times	<6 ns to 100 ms variable. Leading and trailing edges settable separately and limited to 20:1 ratio between settings into one of the following ranges: 5 ns-100 ns; 50 ns-1.0 us; 500 ns-10 us; 5.0 us-100 us; 50 us-1.0 ms; 500 us-10 ms, 5 ms – 100 ms	

Three year warranty 3

Signal Generators
Function Generators

These analog function generators offer familiar controls, stable output, and reliable operation at budget-saving price points. While DDS generators have eclipsed analog generators at the high end, these analog generators are the workhorses of industry, education, and hobbyists. They are widely used for characterizing and troubleshooting electrical circuits.

The model 4040A is an analog generator with AM/FM modulation (internal or external), linear/log sweep, and burst capability. Includes a 5 digit 30 MHz frequency counter with 30 mV sensitivity.

Common Features & Benefits

- Variable output: 10 Vpp into 50 Ω (includes a 20 dB attenuator)
- TTL/CMOS output
- Adjustable DC offset
- Sine/square/triangle/ramp/pulse outputs

The model 4017A is a 10 MHz sweep function generator with a 5 digit LED display, linear/log sweep, variable duty cycle and DC offset.

The model 4001A is an economy function generator with the ability to provide linear and logarithmic frequency sweeps -- a feature usually not seen at this price point. This feature is useful for the frequency characterization of system behavior or the discovery of resonances.

Note: While only the 4040A offers FM modulation, all units except the 4001A have a VCG (voltage controlled generator) input that can simulate FM modulation when driven by a modulating signal. In addition, providing a ramp signal to this input can effectively sweep the generator's output frequency. On generators with sweep, the VCG jack provides a DC signal proportional to the instantaneous frequency, which can be useful for driving XY plotters or scope displays.

Models 4011A and 4012A are popular 5 MHz generators for general bench and lab use with an ideal mixture of features at a compelling price. The 4012A is identical to the 4011A, but with a sweep function added.

Model 4003A is similar to the 4001A, but provides digital frequency setting and a 20 MHz frequency counter for external signals with 100 mV sensitivity at a surprisingly low price.

Specifications	4001A••	4003A••	4010A••	4011A••	4012A	4017A••	4040A••
Frequency Range (sine)	0.5 Hz - 3 MHz		0.2 Hz - 2 MHz	0.5 Hz - 5 MHz		0.1 Hz - 10 MHz	0.2 Hz - 20 MHz
Frequency Resolution	--	5 digits	--	4 digits		5 digits	
Distortion	<2%, 1 Hz - 100 kHz		4% typical at 1 kHz	≤3% typical at 1 kHz			
Rise time (square)	<90 nS		≤120 nS	≤20 nS	≤30 nS		
Weight	5.5 lbs (2.5 kg)		4 lbs (1.8 kg)				4.5 lbs (2 kg)
Dimensions (W x H x D)	10.83" x 3.6" x 11.8" (275 x 90 x 300 mm)		11.75" x 4.5" x 10.57" (298 x 114 x 264 mm)				11.75" x 5.5" x 10.57" (298 x 140 x 264 mm)

◆◆ = c UL us

10 MHz Pulse Generator with 4-digit LED Display

The model 4030 pulse generator supplies positive and negative 0.5-5 V pulses into 50 Ω at up to 10 MHz pulse repetition frequency (pulse periods from 100 ns to 100 ms). Pulse widths are continuously variable between 50 ns and 50 ms and the pulses have rise and fall times of 12 ns. A 4-digit frequency counter and 8 crystal-controlled frequencies let you use the generator for accurate time-domain work. The generator can be triggered from external signals.

Applications

- Interfacing different logic families
- Providing clock signals for digital design tasks
- Measuring pulse response of circuits
- Providing digital delays of up to 2 µs
- Providing clean single pulses to trigger other events
- Converting a repetitive analog signal to clean digital pulses

20 Hz-150 kHz Sine/Square Wave Audio Generator

The model 3001 generates low-distortion sine waves at 46 discrete frequencies. Output impedance is 600 Ω at the dual banana jacks and the output voltage is continuously adjustable up to 1.2 V (RMS) into an open circuit. Output flatness is ±0.5 dB. A 5 Vpp square wave is provided at separate banana jacks for synchronization. Frequency accuracy is 3% from 20 Hz to 100 kHz. The unit is powered by a 9 V battery.

10 MHz Handheld Sine & Square Wave Signal Generator

The 3003 generates up to 10 MHz sine (adjustable amplitude from 0 to 4.5 Vpp, no load) and TTL square waves using DDS technology in steps of 0.1 Hz. Output frequency accuracy is 0.02%. The sine and square waves are available simultaneously from separate BNC female connectors. A 9 V battery supplies power or an external 6-9 VDC adapter can be used. The output frequency is adjusted by push buttons that increment or decrement each digit. The unit is smaller than a typical paperback book and is about 2 inches (50 mm) thick, making it a small, portable package. Battery operation is useful to avoid ground loops and common mode voltages.

150 MHz RF Signal Generator

The 2005B supplies sine wave outputs from 100 kHz to 150 MHz (harmonics usable to 450 MHz) at up to 100 mV (RMS). The output can be amplitude modulated with an internal 1 kHz signal or with an external audio signal up to 1 V (RMS). An external crystal can be plugged in for precise frequency control. The output is provided via a BNC female connector.

Specifications	3001	3003	2005B
Frequency Range	20 Hz - 150 kHz	0.1 Hz - 10 MHz	100 kHz - 150 MHz
Output Voltage	> 1.2 V rms at max setting(no load)	0 to 4.5 Vpp (no load) (sine) 5 Vpp (no load) (square)	up to 100 mVrms
Distortion (sine)	200 Hz - 15 kHz	--	--
Output Impedance	600 Ω	50 Ω	50 Ω - 200 Ω
Weight	7 oz (200 g)	2 lbs (0.9 kg)	5.5 lbs (2.5 kg)
Dimensions (W x H x D)	3.3" x 6" x 0.9" (82 x 150 x 21 mm)	3.8" x 5.7" x 1.5" (97 x 145 x 38 mm)	9.84" x 5.91" x 5.12" (250 x 150 x 130 mm)

SPECTRUM ANALYZERS

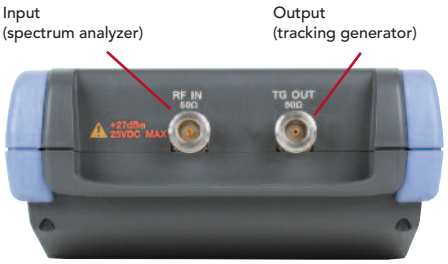
Essential tools for RF measurements

The 2650A series handheld spectrum analyzers are compact, lightweight, and cost-effective instruments for quick and precise signal investigations. At a weight of only 4 lbs (1.8 kg), the 2650A series are by far the lightest full-featured spectrum analyzer available, yet they deliver performance and features comparable to full-size bench spectrum analyzers and can operate up to 4 hours on a single battery.

With their ease of use, measurement flexibility, and unmatched portability, the 2650A series analyzers are indispensable tools for engineers and technicians who conduct field measurements in the 50 kHz to 8.5 GHz range.

Applications

- Installation, maintenance, and troubleshooting of wireless communication systems such as W-CDMA/CDMA, GSM, WLAN, WiMAX and Bluetooth
- Detection of signal interference and undesired emissions
- TV and broadcasting
- Antenna alignment
- Electric field strength measurement with dipole antennas optimized for typical frequencies used in wireless systems
- Magnetic field strength measurement with magnetic field probe (PR 26M)
- Frequency response measurements of passive components such as RF cables, filters, and attenuators using the built-in tracking generator (2652A)



Tracking generator specifications (2652A)	
Frequency range	5 MHz to 3.3 GHz
Output level	-10 dBm ± 1 dB @ 1 GHz (output level is fixed)
Output flatness	±1.5 dB

Features & Benefits

- Frequency range from 50 kHz – 8.5 GHz
- Truly portable spectrum analyzer weighing only 4 lbs (1.8 kg) including the battery
- Impressive 4 hour battery life; easy-to-replace rechargeable Lithium-Ion battery
- USB interface for PC connectivity
- Intuitive PC software for remote control and documentation of measurement results
- Conveniently store measurement results and screenshots in bitmap format to USB flash drive (USB host interface)
- Large easy-to-read color display
- Measurement functions: channel / adjacent channel power, occupied bandwidth, electric and magnetic field strength
- Convenient Auto Tune function automatically sets center frequency to the maximum signal within full span and optimum settings for RBW, VBW and sweep time
- External trigger for zero span measurements
- SCPI-like remote control commands

Superb performance improves your productivity

Advanced synthesizer-based design enables the 2650A series to provide you with an accurate and detailed picture of the spectrum you are investigating.

- Fast sweep speed (minimum 10 ms) to help locate and identify elusive, transient interference signals
- DANL (displayed average noise level) of -127 dBm
- Single sideband phase noise – 90 dBc @ 100 kHz offset

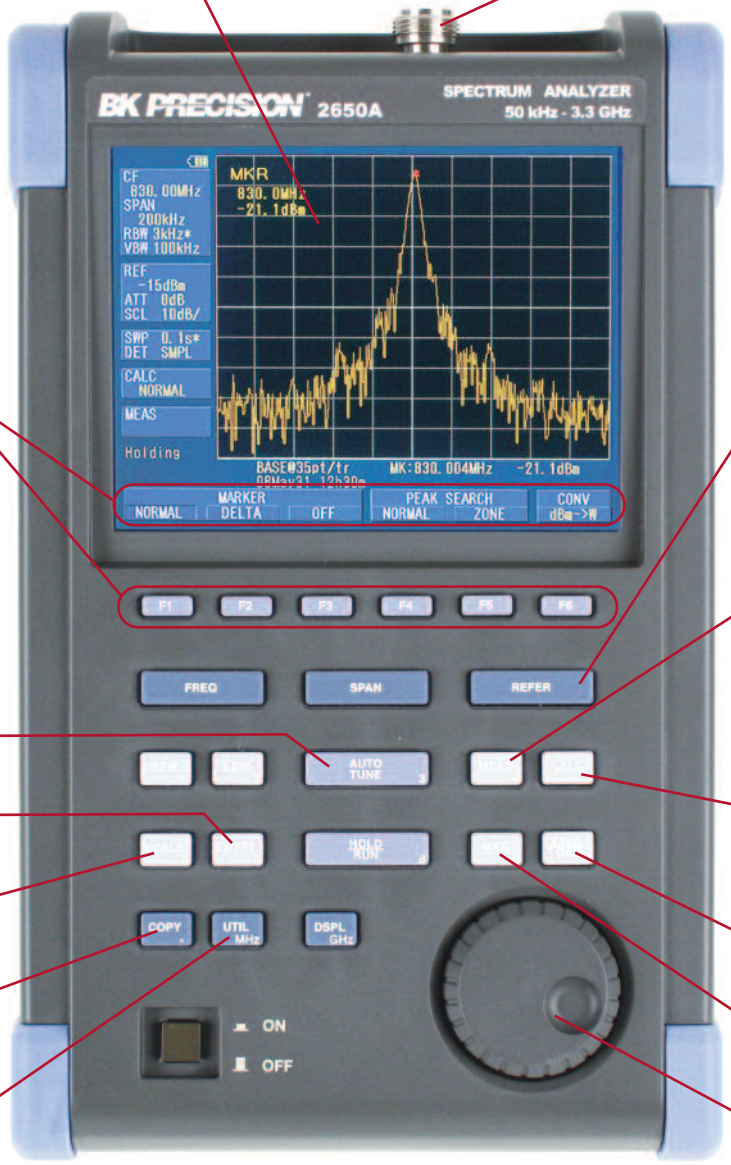
Specifications	2650A/2652A	2658A
Frequency range	50 kHz to 3.3 GHz	50 kHz to 8.5 GHz
Resolution bandwidth	3 kHz to 3 MHz (1-3 sequence) and AUTO	
SSB phase noise	-90 dBc/Hz (typical) @100 kHz offset	
Average noise level	-127 dBm (typical) @ CF : 1 GHz, RBW : 3 kHz, VBW : 100 Hz, Ref. level < - 40 dBm (preamp automatically ON)	
Input VSWR	< 2.0	
Weight	approx. 1.8 kg or 4 lbs (including battery)	
Dimensions (W x H x D)	6.38 x 2.80 x 10.43 inch, (162 x 71 x 265 mm)	

Spectrum Analyzers
Handheld Spectrum Analyzers

Front Panel

Large color screen (640 x 480 pixels) can be switched to high contrast monochrome display in extreme sunlight with adjustable backlight

RF Input (N-connector), able to withstand 27 dBm (CW average power)/25 V DC max



Simple menu-based operation via soft keys

Automatically tune to maximum level with full span

Set sweep time and detection mode

Set display scale (2, 5, and 10 dB/div)

Store screen images in bitmap format to flash drive or hard copy to USB printer

Enter custom labels for filenames, set the time and date

Set reference level from +1 dBm to -60 dBm in 1 dB steps

Measurement Functions:
- Channel power
- Adjacent channel power
- Occupied bandwidth
- Electric field strength
- Magnetic field strength

Calculation Functions:
- Max hold
- Min hold
- Averaging
- Overwrite

Save/Load trace data and setups to/from internal memory or USB flash drive

Marker measurement and peak search

Rotary knob for parameter selection

Interfaces

External trigger input (SMA)

PC interface - USB device (A plug)

Easily save and recall measurement data and settings in CSV format directly to and from the USB flash drive. Filenames can be customized and have a time and date stamp

Charge status indicator

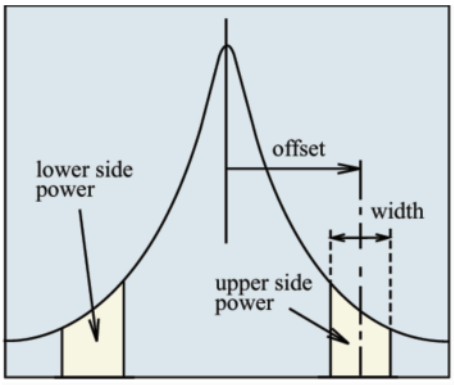
DC power input

Channel Power Measurement

Allows you to measure the total power or noise power in a user-specified bandwidth.

Adjacent Channel Power

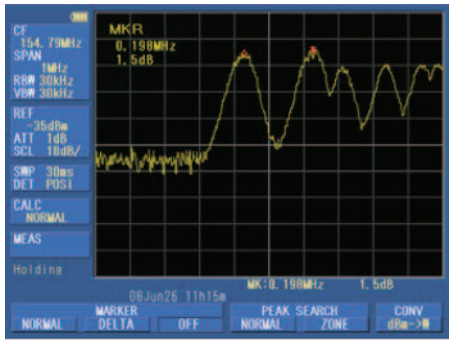
Measure the ratio of power leakage (from the wanted signal) into adjacent channels. Center frequency, adjacent channel bandwidth, and offset between main carrier and adjacent channels can be set.



Marker Function

Two different modes are available for marker measurements:

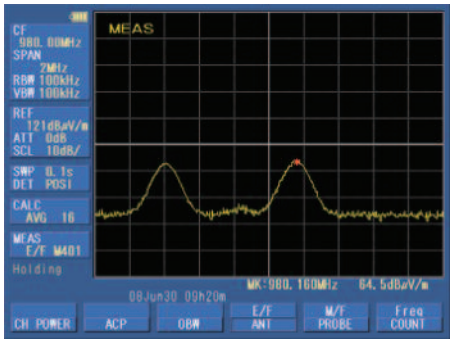
- Normal marker mode measures the frequency and level of the marked point
- Delta marker mode measures the frequency and level differences between the two markers (see image below)



Electric Field Strength Measurement

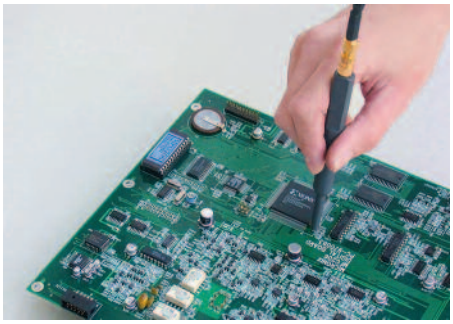
A dipole antenna (options M401 – M406) connected to the RF input enables the measurement of electric field strength. Users can choose from 6 antennas based on the frequency range under investigation.

Combined with the MAX HOLD function and a 10 ms sweep time, the M404 dipole antenna is capable of measuring the electric field strength of Bluetooth systems and systems using direct sequence spread spectrum/ frequency hopping modulation techniques.



Magnetic Field Strength Measurement

Using a magnetic field probe (option PR 26M), the 2650A series is capable of accurately measuring the magnetic field distribution on a PCB (printed circuit board) or IC (integrated circuit) over a wide frequency range of 10 MHz to 3 GHz. Since the probe's compensation data is already preloaded into the analyzer, the magnetic field strength is displayed directly in dBµA/m.



Easy Operation

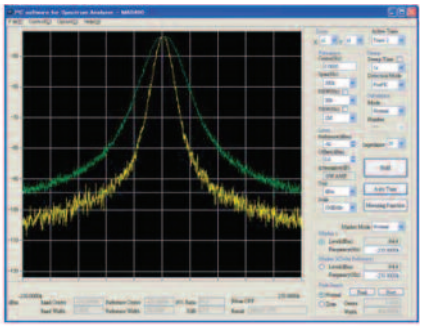
The 2650A series are straightforward to operate and provide many functions to facilitate quick and easy measurements:

- Smart one button "Auto Tune" function which automatically scans the full frequency range, detects and centers the maximum signal, and configures optimum values for RBW, VBW, sweep time and reference level
- Input attenuator and internal preamp are set automatically to optimal values
- 200 setups and reference spectrum measurements can be stored and recalled from either internal memory or USB flash drive

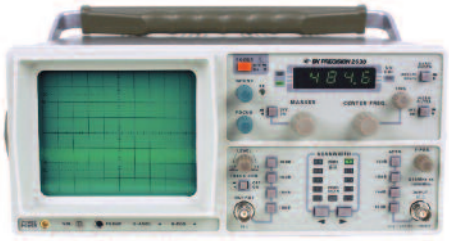
PC Software for Simple and Flexible Documentation of your Measurements

The 2650A series includes easy-to-use software for documentation and further analysis of your measurements. Connect the analyzer via USB cable to your PC, configure the analyzer remotely, then download measurement data and instrument settings for storage and further analysis.

- Continuously sweep and transfer trace data to the PC
- Capture 1001 trace data points (twice the number of display dots) and store the data in CSV format
- Save the screen to a bitmap file



Spectrum Analyzers
Handheld RF Field Strength Meter



Model 2630

Model 2640

The 2630 bench top spectrum analyzer with tracking generator is a value packed tool for service and repair professionals in the cable TV industry and telecommunication field who need to investigate signals up to 1.05 GHz.

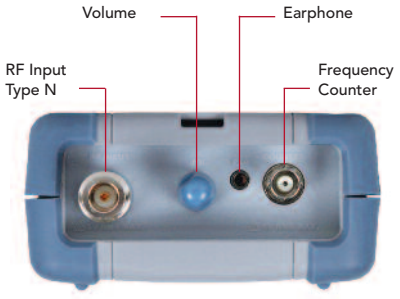
The analyzer is an excellent solution for CATV/MATV system troubleshooting and EMI diagnostics, and cellular telephone /pocket pager test. Convenient carrying case is available.

Key Performance Specifications

- 150 kHz to 1.05 GHz
- Dynamic range of 80 dB (113 dB with attenuation)
- AM & FM demodulator included
- 20 kHz and 400 kHz resolution bandwidth
- <150 kHz/hour frequency stability
- Built-in tracking generator

Model 2640 is a battery-operated, handheld RF field strength meter capable of measuring RF levels and electric field strength. The synthesizer-based design provides you with reliable measurements across a wide reception range of 100 kHz to 2 GHz, a remarkably low noise floor of -110 dBm to detect weak signals and basic spectrum analyzer functionality.

The 2640 provides field technicians and engineers with a cost-effective measurement tool for basic signal investigations at only a fraction of the cost of a full-featured conventional spectrum analyzer.



RF Field Strength Analyzer

- Spectrum: Peak search, marker to center, channel power function
- Internal attenuation: Input range can be extended by enabling the internal 10 dB attenuation function
- Sweep mode: Single run, free run, squelch run selectable
- Squelch function: Squelch level may be adjusted across the full dynamic range

Features & Benefits

- 100 kHz to 2 GHz measurement range with a maximum display span of 400 MHz
- Handheld and battery operated portability
- Built-in 2 GHz frequency counter
- Detects wideband (180 kHz) and narrowband FM (12.5 kHz), AM & SSB (2.4 kHz) signals
- Phase-locked loop for precise frequency tuning
- Up to 160 channels may be scanned and displayed
- Audio output of the detected signal with built-in speaker
- Detachable antenna included
- Back-lit display
- Save/Recall setups and waveforms
- RS232 Interface

Frequency Counter

The 2640's built-in frequency counter is independent from the field strength analyzer and measures the signal applied to the external BNC connector

- Frequency range: 35 MHz to 2 GHz
- No. of digits: 7
- Resolution: 1 kHz

MULTIMETERS

Accurate and reliable measurements

Multimeters
Selection Guide

	Display Counts	DCV Accuracy (%)	Analog Bar Graph	Auto/Manual Ranging	Manual Ranging	True RMS	Min/Max Hold	Peak Hold	Data Hold	Capacitance	Frequency	Logic Level	Transistor Gain (hfe)	Temperature	Relative Mode	dBm Measurement	Diode Test	Continuity Test	Max. Current Range (Amps)	Battery Life (Hours)	Auto Power off	Drop Resistant Case	Model	Page
Bench	20,000	0.03		√		√	√		√		√				√	√	√	√	20	N/A	N/A		2831E	50
	50,000	0.02		√		√	√		√		√				√	√	√	√	20	N/A	N/A		5491B	50
	120,000	0.01		√		√	√		√		√				√	√	√	√	12	N/A	N/A		5492B	49
Digital Handheld	2,000	2			√												√		10	300			2405A	52
	2,000	1.2			√												√	√	10	200	√	√	2703C	51
	2,000	1.2			√			√	√								√	√	10	200			2408	52
	2,000	0.8			√		√		√	√	√	√	√				√	√	10	150		√	2704C	51
	2,000	0.8			√	√	√		√	√	√	√	√				√	√	10	150		√	2707B	51
	2,000	0.5			√		√			√	√			√			√	√	0.2	150	√	√	2706B	51
	2,000	0.5			√												√	√	20	250	√	√	2860A	52
	3,200	1.2	√	√					√								√	√	10	500	√		2407A	52
	3,400	1	√	√		√			√								√	√	10	150	√	√	2708B	51
	4,000	1		√					√								√	√	10	200	√	√	2705B	51
	4,000	0.5			√			√	√	√	√	√	√				√	√	20	500	√	√	388B	52
	4,000	0.25	√	√			√	√	√	√	√				√		√	√	20	500	√	√	389A	52
	4,000	0.1	√	√			√	√	√	√	√			√	√		√	√	20	500	√	√	390A	52
	6,600	0.5		√		√	√			√	√				√		√	√	10	150	√	√	2709B	51
	20,000	0.05			√	√			√		√	√					√	√	20	500	√	√	391A	52
	40,000	0.1	√	√		√	√	√	√	√	√						√	√	10	150	√	√	2712	51
Clamp Meters	2,000	N/A		√					√									√	600	1,000	√		312B	53
	2,000	0.5			√			√	√									√	1,000	300			330B	53
	3,200	0.5	√	√				√	√		√						√	√	1,000	200	√		350B	53
	4,000	0.5	√	√		√	√	√	√	√	√				√		√	√	2,000	100	√		367A	53
	4,000	0.5	√	√		√	√	√	√	√	√				√		√	√	1,000	100	√		369B	53
	10,000	1		√				√	√						√			√	600	50	√		313A	53
	10,000	1		√				√	√						√			√	100	45	√		316	53

Model 5492B

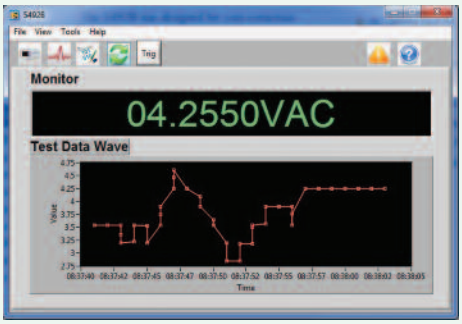
5½-digit Bench Multimeter

Model 5492B is a versatile 5½-digit, 120,000-count bench multimeter suitable for applications in education, service, repair, and manufacturing. This multimeter offers powerful features not commonly found in other 5½-digit DMMs such as advanced triggering, buffer storage operation, and a GPIB interface option.

Fast Buffering with Built-in Statistics

The 5492B provides an internal buffer capable of storing up to 512 readings. The instrument automatically calculates statistical information based on the stored readings such as minimum, maximum, or average reading, and standard deviation, which can be retrieved along with the readings via the front panel or remote command.

PC Connectivity



Programmable via USB, RS232, and GPIB (5492BGPIB only) interface using industry standard SCPI commands, the 5492B can be remotely controlled and configured from a PC. The multimeter can also be remotely controlled using application software (via USB & RS232), which supports front panel emulation and data logging of measurement results.

Features and Benefits

- 5½-digit, 120,000-count display resolution
- 0.01% basic VDC accuracy
- Advanced triggering options such as external, bus and event trigger
- Two and four-wire resistance measurement up to 120 MΩ
- AC voltage and AC current measurement over wide frequency range (ACV 100 kHz/ ACI 10 kHz)
- AC (RMS) and DC current measurements up to 12 A
- Limit mode for Pass/Fail testing
- Save/recall up to 10 instrument settings
- Built-in math functions: Rel, Max/Min, dBm, dB, %, limits, Mx+B
- CAT I (1000 V) / CAT II (300 V) protection
- USB (Virtual Com), RS232 and GPIB (option) interface
- SCPI compatible

Model	DC Volts			AC Volts		Weight	Dimensions (W x H x D)
	Ranges	Resolution	Basic Accuracy	Ranges	Basic Accuracy		
5492B	120 mV, 1.2 V, 12 V, 120 V, 1000 V	1 uV, 10 uV, 100 uV, 1 mV, 10 mV	0.01%(reading)+0.004%(range)	120 mV, 1.2 V, 12 V, 120 V, 750 V	0.1%(reading)+0.1%(range) at 50 -20 kHz	5.51 lbs (2.5 kg)	8.85" x 3.93 " x 13.97" (225 ×100 × 355 mm)

Three year warranty

Multimeters
Bench Multimeters

4 ½-digit and 50,000-count true RMS Bench Multimeters

The 2831E (4 ½ digit) and 5491B (50,000-count) bench digital multimeters provide accurate and reliable measurements for everyday use. These instruments measure volts, ohms, and amps with great accuracy and stability. Additionally, these multimeters enhance productivity with built-in math functions and USB connectivity for remote controllability.

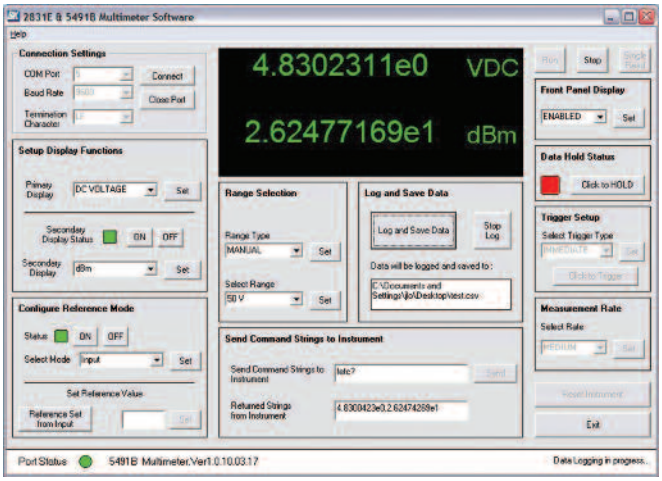
Model 5491B

Features & Benefits

- Dual VFD display
- AC+DC True RMS measurements
- Math functions: Rel, Max/Min, dBm, dB, %, Hold, Compare
- Limit mode for Pass/Fail testing
- CAT I (1000 V) / CAT II (300 V) protection
- USB Interface (Virtual COM)
- SCPI compatible

Increase Productivity with PC Connectivity

The 2831E and 5491B are programmable via USB (virtual com) and RS232 (5491B only) interface using industry standard SCPI commands. Users can control and configure the instrument from a remote PC and retrieve measurement results for further analysis. The meters can also be remotely controlled using application software (downloadable from the B&K website), which supports front panel emulation and data logging of measurement results.



Application software screenshot

Dual Display

The 2831E and 5491B both offer a dual display allowing multiple measurements to be conveniently displayed at once.

Limit Operation

Ideal for pass/fail testing, the limit operation lets users set and control the values that determine a HI / IN / LO status of subsequent measurements.

Specifications	DC Volts			AC Volts		Weight	Dimensions (W x H x D)
	Ranges	Resolution	Basic Accuracy	Ranges	Basic Accuracy		
2831E	200m V, 2 V, 20 V, 200 V, 1000 V	10 uV, 100 uV, 1 mV, 10 mV, 100 mV	0.03%(reading)+0.06%(range)	200 mV, 2 V, 20 V, 200 V, 750 V	0.4%(reading)+0.05%(range) at 50-20 kHz, 2 V range	5.51 lbs (2.5 kg)	8.85" x 3.93 " x 13.97" (225 ×100 × 355 mm)
5491B◆	500 mV, 5 V, 50 V, 500 V, 1000 V	10 uV, 100 uV, 1 mV, 10 mV, 100 mV	0.02%(reading)+0.008%(range)	500 mV, 5 V, 50 V, 500 V, 750 V	0.35%(reading)+0.02%(range) at 50-20 kHz, 5 V range		

◆ = Three year warranty

B&K Precision's 2700 Tool Kit® Series
These meters are excellent for most jobs that require flexibility, accuracy, and speed. Value-packed features make these meters a must for everyone's "Tool Kit®".

Common Features & Benefits

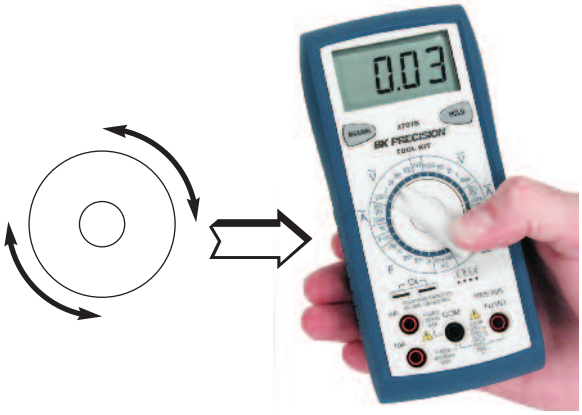
- DC voltage measurement up to 1000 V
- AC voltage measurement up to 750 V
- DC current measurement up to 10 A
- Diode and continuity test
- Drop resistant case
- Magnetic hanging strap

Magnetic Hanging Strap

This convenient feature lets you hang your DMM on any magnetic metallic surface, freeing up your hands for troubleshooting.

Single-handed Operation

The ergonomic design allows both left and right handed users to rotate the knob while holding the meter in one hand. While one hand keeps the probe on the circuit, the other hand changes the meter's function. This speeds up troubleshooting because you don't have to locate the probe point in the circuit again.



Specifications	2703C	2704C	2705B	2706B	2707B	2708B	2709B	2712
Ranging	Manual	Manual	Auto/Manual	Manual	Manual	Auto/Manual	Auto/Manual	Auto/Manual
True RMS	-	-	-	-	AC	AC	AC	AC + DC
Current	10 A DC	10 A AC/DC	10 A AC/DC	200 mA AC/DC	10 A AC/DC	10 A AC/DC	10 A AC/DC	10 A AC/DC
Capacitance	-	to 20 uF	-	to 20 mF	to 20 uF	-	to 66 mF	to 40 uF
Transistor Test	-	√	-	-	√	-	-	-
Frequency Counter	-	to 20 MHz	-	to 40 kHz	to 20 MHz	-	to 66 MHz	to 500 kHz
Temperature	-	-	-	√	-	-	-	-
Logic Probe	-	√	-	-	√	-	-	-
Backlight LCD	-	-	-	√	-	-	√	√
Analog Bar Graph	-	-	-	-	-	√	-	√
Battery Test	√	-	-	-	-	-	-	-
Auto Power off	√	-	√	√	-	√	√	√
Weight	10 oz (283 g)							
Dimensions (W x H x D)	3.07" x 6.4" x 1.67" (78 x 163 x 42 mm)							

Three year warranty

Multimeters
Digital Handheld

Model 2408

Model 2860A

Model 390A

The Mini-Pro® Series offers the hobbyist a good choice for performing 90% of most basic electrical measurements such as DC/AC voltage, DC current, and resistance. Compact in size and low in cost, these meters are great to have in every toolbox and field service kit.

For extra durability and rugged protection, the **Survivor® multimeter** is most suitable. Its rubber boot allows for better protection from accidental drop or mishandling. Due to a built-in high energy fuse on all current ranges, extensive overload protection plus UL listing, this meter is safe to use in various environments.

The Test Bench® Series are high performance and value-priced, portable multimeters, offering more features for the dollar than other multimeters. These meters measure resistance, capacitance, frequency, and temperature. This series also includes a logic indicator and component test function.

	Mini-Pro®			Survivor®	Test Bench®			
Specifications	**2405A**	**2408**	**2407A**	**2860A**	**388B◆**	**389A◆**	**390A◆**	**391A◆**
Display Counts	2,000	2,000	3,200	2,000	4,000	4,000	4,000	20,000
Basic DC Accuracy	2%	1.2%	1.2%	0.5%	0.5%	0.25%	0.1%	0.05%
Ranging	Manual	Manual	Auto	Manual	Manual	Auto/Manual	Auto/Manual	Manual
Current	10 A	10 A	10 A	20 A	20 A	20 A	20 A	20 A
Auto Zeroing	√	√	-	-	-	-	-	-
Bar Graph	-	-	√	-	-	√	√	-
Auto Power Off	-	-	√	√	√	√	√	√
Continuity	-	√	√	√	√	√	√	√
Data Hold	-	√	√	-	√	√	√	√
Max. Hold	-	√	-	-	-	√	√	-
Weight	7.27 oz (206 g)			12 oz (353 g)	11.3 oz (320 g)			
Dimension (W x H x D)	2.25" x 5.63" x 1.37" (57 x 143 x 35 mm)			3.5" x 6.88" x 1.5" (89 x 175 x 38 mm)	3.5" x 7.8" x 1.57" (89 x 198 x 40 mm)			

◆ = Three year warranty

Model 312B

Model 313A

Model 350B

Model 367A

B&K Precision offers a variety of current clamps from small to large, for safe non-invasive current measurements. These meters also measure voltage and resistance. Some models even support frequency and capacitance measurements, and include special features such as recording capabilities of minimum and maximum values, peak values, and diode testing.

Common Features & Benefits

- AC voltage and current measurements
- Resistance measurements
- Audible continuity
- Data hold
- Low battery indicator
- Overload protection
- CE Approval

Model 316

Specifications	312B	330B	313A	316	350B	369B	367A
Display Counts/Digits	2,000	2,000	10,000	10,000	3,200	4,000	4,000
True RMS	-	-	-	-	-	√	√
AC Current	600 A	1,000 A	600 A	100 A	1,000 A	1,000 A	2,000 A
DC Current	-	-	600 A	100 A	-	1,000 A	2,000 A
AC Voltage	600 V	750 V	600 V	600 V	750 V	750 V	750 V
DC Voltage	-	1,000 V	600 V	600 V	1,000 V	1,000 V	1,000 V
Resistance	200 Ω	2,000 MΩ	1,000 Ω	10 kΩ	30 MΩ	40 MΩ	40 MΩ
Frequency	-	-	-	-	√	√	√
Continuity	√	√	√	√	√	√	√
Capacitance	-	-	-	-	-	√	√
Weight	7.4 oz (210 g)	17 oz (482 g)	7.76 oz (220 g)	6.34 oz (180 g)	17 oz (482 g)	18.3 oz (482 g)	
Dimensions	1.97" x 7.36" x 1.14" (50 x 187 x 29 mm)	3.6" x 10.8" x 1.7" (91 x 274 x 43 mm)	2.76" x 7.55" x 1.33" (70 x 192 x 34 mm)	2.76" x 7.95" x 1.33" (70 x 202 x 34 mm)	3.6" x 10.8" x 1.7" (91 x 274 x 43 mm)		

COMPONENT TESTERS

Troubleshoot with confidence

Component Testers
Selection Guide

B&K Precision offers a wide range of component testers that can measure and identify values of capacitors, resistors, inductors, diodes, ICs, and transistors. Major applications are component sorting or circuit troubleshooting.

LCR Meters are versatile instruments as they can measure most common passive components used in electronic circuitry. Capacitance meters on the other hand are dedicated to testing capacitors only, and typically offer a wider capacitance measurement range. Our transistor testers and meters that measure ESR can be invaluable tools when testing and troubleshooting components "in-circuit", while logic probes are always used in-circuit. IC Testers are used to identify and test certain analog and digital ICs.

Category	Description	Max Range	Basic Accuracy	Model	Page
LCR	LCR Meter	200 H / 20 mF / 20 MΩ	1%	875B	56
	Universal LCR Meter	1 kH / 20 mF / 10 MΩ	0.5%	878B	56
	Deluxe Universal LCR Meter with ESR	1 kH / 20 mF / 10 MΩ	0.5%	879B	56
	Synthesized LCR / ESR Meter with SMD Probe	31.83 kH / 15.91 mF / 20 MΩ	0.2%	885	56
	Synthesized LCR / ESR meter with SMD Probe 100kHz test freq.	31.83 kH / 15.91 mF / 20 MΩ	0.2%	886	56
	Bench LCR/ESR Meter with Component Tester	31.83 kH / 15.91 mF / 20 MΩ	0.1%	889B	56
Capacitance	Compact Capacitance Meter	20 mF	0.5%	810C	57
	Dual Display Capacitance Meter	50 mF	0.5%	890C	57
	Dual Display Capacitance Meter	200 mF	0.5%	830C	57
Component Tester	Component Tester	20 mF/ 20 MΩ	0.5%	815	58
IC	Linear IC Tester	---	---	570A	58
	Digital IC Tester	---	---	575A	58
ESR	In-Circuit ESR Tester	2200 μF	---	881	58
Logic Probes	Digital Logic Probe	20 MHz	---	DP 21	58
	Digital Logic Probe	50 MHz	---	DP 52	58
	Logic Pulser Probe	400 Hz	---	DP 31A	58

How to use an LCR meter video

Using the 879B LCR meter, this video explains how instrument settings such as test frequency and measurement mode influence measurement accuracy.
http://goo.gl/JxjnH

Scan QR code to view video

Component Testers
LCR Meters

LCR meters measure inductance, capacitance, and resistance and are primarily used for component testing in manufacturing quality control or circuit design. They also find use in many other applications such as characterization of cable assemblies, materials and chemicals.

Model 879B

Models 878B & 879B are 40,000-count hand-held meters designed for accurate and fast measurements.

Features & Benefits

- 40,000-count primary and 10,000-count secondary display (backlight with 879B)
- L, C, R, and Z (879B only) primary measurements
- D, Q, θ and ESR secondary measurements (ESR with 879B only)
- 0.5% basic accuracy
- USB (Virtual COM) interface
- SCPI compliant commands for remote communication

Model 885

Models 885 & 886 are 10,000-count handheld meters equipped with 4-wire terminal connections to facilitate more accurate measurements.

Features & Benefits

- Measurement parameters: Z, L, C, DCR, ESR, D, Q, and Ø
- Test conditions: 100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz (model 886), 1 Vrms, 0.25 Vrms, 0.05 Vrms
- 0.2% basic accuracy
- Dual LCD display
- SMD surface mount tweezer probe included

Model 875B is a manual range, hand-held 20,000 count LCR meter that is reliable and easy to use.

- Measures D (dissipation factor)
- Zero adjustment knob

Model 889B

Model 889B is a 10,000-count bench meter that uses a 4-wire connection designed for accurate measurements.

Features & Benefits

- Measurement parameters: ACV, DCV, Z,L, C, DCR, ESR, D, Q, and Ø
- LCR test conditions: 100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz, 200 kHz , 1 Vrms, 0.25 Vrms, 0.05 Vrms, 1 VDC (DCR mode only)
- Measures DCV to 600 V and ACV to 600 Vrms @ 40 Hz ~ 1 kHz
- Measures DCA to 2 A and ACA to 2 Arms @ 40 Hz ~ 1 kHz
- 0.1% basic accuracy
- Diode and continuity measurements
- Dual LCD display
- BNC to Kelvin Clip probe included
- USB (Virtual COM) interface

Specifications	Test Signal		Inductance Measurable Range	Capacitance Measurable Range	Resistance Measurable Range	Weight	Dimensions (W x H x D)
	Frequency	Level					
875B◆	120 Hz, 1 kHz	Approximately 0.5 Vrms	200 uH - 200 H	200 pF - 20 mF	2 Ω - 20 MΩ	0.9 lbs (400 g)	3.5" x 7" x 1.6" (88 x 177 x 40 mm)
878B	120 Hz, 1 kHz	Approximately 0.6 Vrms	400 uH - 1000 H	400 pF -20 mF	40 Ω - 10 MΩ	0.7 lbs (330 g)	3.5" x 7.5" x 1.6" (90 x 190 x 41 mm)
879B	100 Hz, 120 Hz, 1 kHz. 10 kHz	Approximately 0.6 Vrms	40 uH - 1000 H	40 pF -20 mF			
885◆	100 Hz, 120 Hz, 1 kHz, 10 kHz	1 Vrms, 0.25 Vrms, 50 mVrms, 1 VDC (DCR only)	1.592 uH - 31.83 kH	0.795 pF - 15.92 mF	0.1 Ω - 20 MΩ	1.1 lbs (470 g)	3.4" x 6.9" x 1.9" (86 x 175 x48 mm)
886◆	100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz	1 Vrms, 0.25 Vrms, 50 mVrms, 1 VDC (DCR only)	0.159 uH - 31.83 kH	0.795 pF - 15.92 mF			
889B◆	100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz, 200 kHz	1 Vrms, 0.25 Vrms, 50 mVrms, 1 VDC (DCR only)	0.079 uH - 31.83 kH	0.079 pF - 15.91 mF	0.1 Ω - 20 MΩ	10 lbs (4.5 kg)	8.7" x 11.8" x 5.9" (220 x 300 x 150 mm)

◆= Three year warranty 3

Dual Display Handheld Capacitance Meters

The 830C and 890C are 11,000-count handheld capacitance meters that measure capacitance up to 200 mF and 50 mF respectively. Straightforward to operate, these meters make measurements quickly and simplify the capacitance sorting process. Unlike other handheld instruments such as LCR meters that make measurements using an AC signal with a specific test frequency, these meters measure capacitance by applying a constant current that briefly charges, then discharges the connected capacitor. The compare mode which supports 25 sets of High/Low limits, provides a convenient means to sort capacitors without needing to set up the meter each time. Data logging, Hold/Min/Max Average recording, tolerance, and relative mode features offer additional component troubleshooting tools.

Model 890C

Model 810C

The 810C is a compact manual ranging capacitance meter, designed for accurate cost-effective measurement of capacitive components. It features fused direct-plug-in test sockets, test lead jacks, and a zero adjustment knob to "zero" test lead capacitance.

Three year warranty

Features & Benefits

- 0.5% basic accuracy
- Measure capacitance up to 200 mF (50 mF for 890C)
- Bright LCD backlight
- Fast auto ranging design for rapid, easy component measurements
- USB (Virtual COM) interface
- SCPI compliant commands for remote communication
- Software for data logging and front panel emulation available as free download

Specifications	Special Features	Test Level	Measurable Range	Weight	Dimensions (W x H x D)
810C	Manual range dial	<3.5 V	200 pF - 20 mF	70 oz (200 g)	2.7" x 5.9" x 1.5" (70 x 151 x 38 mm)
890C	Sorting function, tolerance function	<3 V	1000 pF - 50 mF	0.77 oz (350 g)	7.5" x 3.5" x 1.6" (190 x 90 x 41 mm)
830C	Sorting function, tolerance function	<3 V	1000 pF - 200 mF	0.77 oz (350 g)	7.5" x 3.5" x 1.6" (190 x 90 x 41 mm)

Applications

- Capacitive component troubleshooting
- Electronic assembly
- Component sorting
- Quality control

Component Testers
IC, ESR & Logic Probe Testers

Model 570A

Model 881

Model 815

IC Testers

The 570A interfaces with analog ICs and the 575A with digital ICs. Both versions emulate passive circuitry around the IC under test to ensure that a comprehensive test takes place. High integrity verification offers guaranteed levels of reliability in the results. Conditional and unconditional loop testing modes ensure that intermittent and/or temperature related faults are detected. The units automatically sense the functionality of the device to be tested and display a list of possible equivalents for replacement. Unmarked and house-coded ICs can be identified and tested.

Features & Benefits

- Auto identification mode
- Conditional/unconditional loop testing mode
- Functional test unit emulates passive circuitry to implement a comprehensive test in a variety of configurations and gain settings
- Displays diagnostic information down to individual component pins

In-Circuit ESR & DCR Capacitor Tester

The 881 is a portable In-Circuit ESR Meter that measures the equivalent series resistance of electrolytic capacitors in or out of circuit and can also be used to measure low value non-inductive resistors. In-circuit measurements are dependent on the circuit design of the capacitor being measured.

Features & Benefits

- Measures ESR with a range of 0.1 to 30 Ω
- Tricolored chart shows ESR readings of Good, Fair, and Bad
- Measures DCR with a range of 0.1 to 30 Ω
- 15 mVp-p output test voltage (will not turn on any solid-state devices)
- Includes a one-handed tweezer test probe

Component Tester

The 815 is a handy meter measuring capacitance up to 20 mF and resistance up to 20M Ω and can also test transistors, diodes, SCRs, LEDs, and batteries.

Features & Benefits

- Transistor leakage test
- Diode and SCR test
- LED test
- Battery test

Logic Probes

Model DP 21

For use with TTL and CMOS circuits and ICs

Model	Description
DP 21	20 MHz Digital Logic Probe
DP 52	50 MHz Digital Pulser Probe
DP 31A	400 Hz Digital Pulser Probe

Model 1823A

Model 1856D

The 1823A and 1856D are reciprocal 2.4 GHz and 3.5 GHz universal frequency counters that are microprocessor controlled. Their LED displays can provide up to nine digits of resolution using an external time base with a 10 s gate time. The high accuracy, sensitivity and versatility of these counters make them an extremely valuable instrument to scientists, engineers, experimenters and communications technicians for a broad spectrum of laboratory and service applications.

Features and Benefits

- ±1PPM Time base stability
- Trigger level function (1823A only)
- Frequency ratio measurement function (1823A only)
- Time interval measurement function (1823A only)
- RPM measurement function (1856D only)
- External frequency standard input
- Bright LED display
- Attenuator
- Period
- Total
- Low pass filter
- Line filter
- RS232C Interface

Specifications	1823A	1856D
Range	0.1 Hz - 2.4 GHz	0.1 Hz - 3.5 GHz
Frequency	√	
Totalize	√	
Period	√	
Time Base Stability	± 1ppm	
Best Resolution	1 nHz	
No. of Digits	9	
Display Hold	√	
Low Pass Filter	√	
Sensitivity	250 mV (0.1 Hz - 1 Hz), 30 mV (1 Hz - 100 MHz), 25 mV (80 MHz - 150 MHz), 20 mV (150 MHz - 2.0 GHz), 60 mV (2.0 GHz - 2.4 GHz)	30 mV (0.1 Hz - 100 MHz), 15 mV (80 MHz - 2 GHz), 20 mV (2 GHz - 3.0 GHz), 30 mV (3.0 GHz - 3.2 GHz), 50 mV (3.2 GHz - 3.5 GHz), 30 mV rms
Remote Interface	RS232	
Self-Test	√	
Time Interval Measurement	√	-
Frequency Ratio Measurement	√	-
Weight	5.5 lbs (2.5 kg)	
Dimensions (W x H x D)	9.4" x 3.5" x 10.6" (239 x 89 x 269 mm)	

Electrical Testers

Model 301

Model 302

Model 307A

AC Line Separator

The 301 provides temporary separation of conductors to facilitate measurement of current with an AC current clamp meter.

Features & Benefits

- X10 Mode allows for more accurate measurements of low amperage devices
- 2 mm voltmeter measurement points
- Integrated ground conductor (three pronged US standard plug)
- 15 A maximum capacity

Phase and Motor Rotation Meter

The 302 is a 3-phase presence and rotation meter combined with a 3-phase motor rotation tester. It provides the quickest and easiest means for servicing, and repairing 3-phase systems and 3-phase rotating machinery.

Features & Benefits

- Indicates phase presence / rotation
- Indicates motor rotation / wiring
- Phase rotation and motor rotation indicator works from as low as 1 Vac
- IEC / EN 61010-1 CAT III 600 V / CE

Insulation Tester

The battery-powered insulation testers models 300, 305, 307A and 308A are intended primarily for periodic testing of industrial motors, transformers, electrical wiring, and cable insulation. Low readings may point to insulation deterioration that can indicate impending failure. Early detection permits replacement during routine maintenance rather than risking production downtime. Insulation testers are also useful for safety testing of TV sets and appliances to assure that no hazardous leakage current is present.

Models 300 & 305

- Test insulation resistance
- Measure AC voltage to 600 V
- Battery powered
- 1000 V, 2000 MΩ (Model 300)
- 500 V, 1000 MΩ (Model 305)

Models 307A & 308A

- Selectable 250 V, 500 V, or 1000 V insulation test
- Low resistance test
- Extra rugged integral carrying case
- Live circuit indicator warns of safety hazard
- IEC / 61010-1 CAT III 600V / CE

Specifications	300	305	307A	308A
Type	Analog	Analog	Analog	Digital
Output Voltage	1,000 VDC	500 VDC	1,000 VDC	1,000 VDC
Maximum current	250 μA	500 μA	1.3 mA	1.2 mA
Resistance Range	1 MΩ -2000 MΩ	0.2 MΩ - 1,000 MΩ	0-400 MΩ	0-2,000 MΩ
Center Scale	50 MΩ	20 MΩ	1 MΩ, 2 MΩ, 4 MΩ	Does not apply
Weight	15 oz. (430 g) with batteries		2.6 lbs (925 g) with batteries	
Dimensions (W x H x D)	6.66 x 4.18 x 1.42" (169 x 106 x 36 mm)		7 x 8.5 x 3.5" (180 x 220 x 90 mm)	

Model 309

Digital Earth Resistance Meter

The 309 digital earth resistance meter (also known as an earth ground meter) is a small, compact, battery-powered, professional meter that is easy-to-use and invaluable to electricians and contractors who need to ensure the "ground" quality and effectiveness of buildings, structures, equipment or electrical systems. A good earth ground is required for new buildings or structures needing to pass required electrical codes. Older buildings can lose a good effective earth ground connection over time or after being struck by lightning.

Features & Benefits

- Measure earth resistance (20/200/2,000 Ω ranges)
- Measures earth AC voltage to 200 VAC (40 to 500 Hz)
- Timed function test turns output off after a 3 to 5 min continuous test
- 2 mA measuring current permits earth resistance testing without tripping circuit breakers
- Data hold
- Auto power off
- IEC / 61010 CAT III 200 V / CE

Model 310

Digital Milli-ohm Meter

The 310 digital milli-ohm meter is used to ensure continuity and integrity of a wire, cable, conduit, or any electrical connection. The 310 has a display resolution of 100 µΩ and include a professional 4-wire Kelvin test lead set to ensure accurate readings. The heavy duty case comes with a convenient shoulder strap and has a rubber seal to make the unit water resistant.

Features & Benefits

- Four-wire Kelvin lead measurements
- Overvoltage and overtemperature protection
- 5 ranges with 100 µΩ max resolution
- Water resistant case with shoulder strap
- Auto power off
- IEC / EN 61010-1 / CE

40 kV High voltage probe meter

The HV-44A is a self-contained instrument that measures high DC voltages up to 40 kV. This probe is typically used to measure high voltages in TV sets, power supplies, laboratories and other general high voltage commercial applications.

Model 325

True RMS AC/DC Power Clamp Meter

The 325 AC/DC true RMS power clamp meter provides safe, non-invasive measurements of up to 400 kW, 400 A AC, and measures up to 600 V AC/DC utilizing the pair of standard test leads. The lightweight, portable, battery-powered clamp meter measures parameters needed to troubleshoot residential and small commercial electrical systems such as ACV, DCV, ACA, DCA, Ω, W, frequency and continuity.

Features & Benefits

- 3 ¾ digit backlit LCD display
- Auto range
- Auto power off
- Data hold
- High speed digital bargraph
- Jaw opening 1.37" (35 mm)
- IEC / 61010 CAT III 600 V / CE

Specifications	325
DC Current	
Range	400 A, 600 A
Resolution	0.1 A, 1 A
Accuracy	1.5% + 5 digits
	2% + 5 digits
AC Current (True RMS : From 10% to 100% of Range)	
Range	400 A, 600 A
Resolution	0.1 A, 1 A
Accuracy	
40 Hz- 65 Hz	2.0% + 5 digits
65 Hz - 1 kHz	3.0% + 8 digits

Device-Programmers
EPROM Programmers

Model 866C

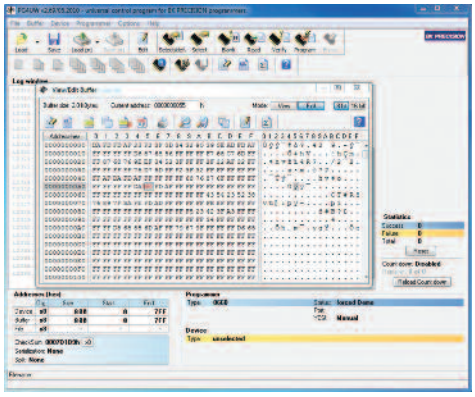
Model 844USB

Universal device programmers are powerful, versatile, and simple to use. Our programmers are the ideal solution for programming new chips as well as copying chips for backup or repair purposes.

We offer on-going program software updates that extend device libraries and provide continuous improvements for both models 844USB and 866C programmers.
Whether you are working with PLCC, SOIC, TSOP, DIP, TQFP, SSOP, PSOP or QFP packaging, we provide an extensive line of socket adapters that will work in conjunction with our programmers.

Common Features & Benefits

- Extensive device libraries
- Fast and high performance
- Powerful program software
- Supports Windows® XP/Vista/7



Programmer software

Deluxe EPROM Eraser

The model 851 is a heavy duty EPROM eraser that can simultaneously erase up to 40 twenty-four pin EPROM chips. It is constructed of an all-metal case, and is designed with a chip drawer that prevents UV radiation exposure from causing harm to the user. The drawer is lined with conductive foam to prevent electrostatic damage to the chips. A 30-minute timer is provided to control timing of UV exposure.

Specifications	844USB	866C
Devices Supported	EPROM, EEPROM/Flash, Serial EPROM, Microcontroller, PLD and BPROM (BPROMs 866C)	
Device libraries	Over 29,000	Over 70,000
Interface	USB 2.0 / USB 1.1 Compatible	
Programming Socket	DIL40 pin ZIF Socket, ISP for in-circuit programming	DIL48 pin ZIF Socket, ISP for in-circuit programming
Buffer Features	"Erase, Random Data Fill, Fill Block, Copy Block, Move Block, Swap Block, Buffer Print, Find Text, Replace Text, GoTo Address, Checksum Calculator, 8 bit & 16 bit View Modes"	
I.C. Tester	No	Yes
Weight	1.1 lbs (500 g)	1.98 lbs (0.9 kg)
Dimensions (W x H x D)	3.8" x 1.4" x 6.3" (95 x 35 x 160 mm)	5.5" x 2.2" x 7.7" (140 x 56 x 195 mm)

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Battery Testers
Battery Capacity Analyzers

Battery capacity analyzer models 600 and 601 can be used to identify defective or deteriorated batteries. These analyzers display the stored charge capacity of SLA (Sealed Lead Acid) acid batteries as a percentage as well as the loaded and unloaded battery voltage.

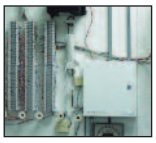
Model 600

Model 601

Common Features & Benefits

- Measures both no load voltage and battery capacity
- Displays storage capacity of lead acid batteries as a percentage
- Great tool for testing backup batteries for UPS, security, and emergency flood light systems
- Analyzers are powered by the battery under test (no external power supply or battery needed)

Batteries


Communications

Alarms

UPS Systems

Sprinkler Systems

Model 601 Additional Features

- Amp hours are selectable in 1Ah steps, which extends the range of batteries that can be tested (compared to model 600 with a few amp hour presets)
- Perform a complete battery analysis in as little as 6 seconds
- Display the internal resistance of the battery under test
- Easy-to-use interface: simply select the proper Ah range and press the TEST switch to obtain the BUT's (battery under test) percentage balance capacity
- Tests 6 VDC & 12 VDC batteries

Applications

The need for battery maintenance tools is growing in automotive, field service and maintenance, telecommunications, and UPS manufacturing/maintenance fields. These instruments are ideal tools for anyone working with UPS systems, emergency backup flood lights, home and business security alarm systems, or any other application using a lead acid battery.

Specifications	600	601
Testable Battery Voltages	12 V	6 & 12 V
Max. Input Voltage	20 V	20 V
Selectable Amp Hours	7, 12, 24, 42, 65, 100	1 - 100 AH in 1 AH steps*
Dimensions (W x H x D)	3.14" x 6.3" x 1.6" (80 x 160 x 41 mm)	3.14" x 9.5" x 1.6" (80 x 241 x 41 mm)
Weight	2.2 lbs. (1 kg)	2.31 lbs (1.04 kg)

*= Optimized to work on batteries with amp hours between 5 and 99

Video & Cable

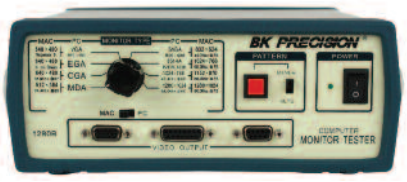
Model 1253

HDTV Pattern Generator

The 1253 is an affordable handheld HDTV test pattern generator that delivers from its YPbPr outputs accurate test patterns for the testing of the most common HDTV displays including Plasma, LCD, TFT, CRT, DLP, GLV, and OLED digital display products.

Features & Benefits

- Made in the U.S.A.
- Lightweight and portable
- Ideal for on-the-bench and in-the-field testing
- High-quality BNC to RCA interface cable included



Model 1280B

NTSC Generators & Video Monitor Testers

Models 1211E, 1257, 1275, and 1280B are handheld and benchtop models that provide standard test patterns used to test picture quality. These patterns include NTSC color bars, crosshatch, dot, staircase, circle, center cross, windows, and a full range of color raster patterns.

Features for NTSC Generator

- S Video
- Composite video
- RF output (model 1211E only)
- Audio output (model 1257 only)
- Interlace or progressive scanning system

Features for Video Monitor Testers

- Compatible with PC and Mac monitors
- 16 monitor types/resolution selections
- Displays color bar, cross hatch, dot, raster and window patterns
- VGA, SVGA, RGB, HV,V & four DB 15 (rear panel) for multiple monitor burn-in

Model 262

Tone Generator & Cable Tracer Kit

The 262 kit comprises two handheld, battery-powered instruments designed to perform a variety of tests on unenergized telephone lines or LAN cables.

The tone generator has alligator clips and a standard RJ11 plug, allowing the tone generator to be connected to stripped wires, terminal panels, wall plates, or modular single line jacks.

The cable tracer can trace the signal from the tone generator signals through dry wall, wood, and many other non-metal surfaces to help identify wires and their location without piercing the insulation.

Model 231A

Deluxe Multi-network Cable Tester

The 231A can easily read the correct pin configuration of 10BaseT cable (category 5), 100BaseTx, 10Base2 cable (coax) and RJ45/RJ11 modular cables, 356A, TIA 568A, TIA 568B and Token Ring cables by comparing one transmitting end to the corresponding receiving end. With the remote kit, it can test cables installed far away either on wall plate or patch panel up to 1000 ft away. It is easy to verify the cable continuity, open, short, and cross connect, featuring auto or manual scan for pin-out indicators.

Category	Model	Description
HDTV Pattern Generator	1253	Handheld HDTV Pattern Generator
Network Cable Testers	231A	Deluxe Multi-Network Cable Tester
NTSC Generators	1211E	Handheld NTSC Generator with Audio Output
	1257	Portable NTSC Generator with RF Output
Tone Generator & Cable Tracer	262	Tone Generator & Cable Tracer Kit
Video Monitor Testers	1275	Portable Video Pattern Generator
	1280B	Benchtop Computer Monitor, PC and MAC, Video Generator

Environmental Testers

Model 732A

Model 715

Model 760

Model 615

Model 636

These handheld environmental testers sample and measure environmental properties such as temperature, humidity, sound, pH and air flow. Each meter is designed for fast, reliable measurements.

Category	Model	Description
Air Velocity Meter	731A	Anemometer with Wand Probe
Digital Carbon Monoxide Meter	627	Carbon Monoxide (CO) Meter
Digital Infrared Thermometer	635	Infrared Thermometer with Laser Pointer
	636	Non-Contact Infrared Thermometer with Laser Pointer
Digital Light Meter	615	Light Meter
Digital Thermo-Hygrometer	625	Thermo-Hygrometer
	720	Humidity/Temp Meter w/Dual Input
	725	Datalogging Humidity/Temp Meter w/Dual Input
Digital Thermometer	630	Dual K-type Thermometer
	710	Temperature Meter, Dual Input
	715	Datalogging Temperature Meter, Dual Input
pH Meter	760DX	Deluxe Intelligent pH Meter with Accessories
	760KIT	Intelligent pH Meter with pH Probe
Sound Level Calibrator	CAL73	Standard Acoustic Calibrator (94 dB, 1 kHz Sine Wave)
Sound Level Meter	732A	Digital Sound Level Meter with RS 232 Capability
	735	Datalogging Digital Sound Level Meter w/RS232 Software & Cable

Air Velocity Meter
Handheld mechanical vane on retractable cord anemometer designed to measure airflow and air temperature. Displays values in knots, mph, km/h, m/s, ft/min, °F, and °C.

Digital Carbon Monoxide Meter
Handheld meter that measures the amount of carbon monoxide in parts per million.

Digital Infrared Thermometers
Compact, handheld infrared digital thermometers with laser pointer and adjustable emissivity designed for simple one-hand operation. These meters make non-contact temperature measurements and display the values in both °F and °C.

Digital Light Meter
Handheld meter that measures the amount of light intensity in both lux and foot candles (fc).

Digital Thermo-hygrometers
Three handheld meters that measure the level of relative humidity as a percent and temperatures in °F and °C.

Digital Thermometers
All three handheld meters measure temperature via two K-type thermocouples. Temperature is displayed in both °F and °C.

pH Meter
Handheld meter that measures the pH level and temperature of fluids.

Sound Level Calibrator
The calibrator is used to calibrate sound level meters to a 94 dB and 114 dB standard.

Sound Level meters
Two handheld meters that measure sound level from 30 to 130 dB with both A and C frequency weighting. Both meters meet IEC 651 type II standards.

General Accessories
Power Supplies & Carrying Cases

In addition to the general purpose accessories shown, B&K also offers a broad range of product-specific accessories which can be viewed on the individual product overview pages on our website.

Power Supply Accessory Kit
TLPS

This accessory kit combines safety and functionality. A must have for anyone who uses a power supply, this kit is ideal for use with power supplies in educational, service and maintenance, and manufacturing applications.

- High capacity silicone jacketed leads
- Connection adapters
- Medium and large insulated alligator clips
- Black and red components
- Sense lead included

Description	Qty.	(IEC Rating)	Voltage Current Max.
Retractile Leads, 120cm (48") (colors)	*2	600 V CAT II	25 A
6/4mm Spade Lug Adapters, (colors)	*2	33 Vdc/ 70 Vac	36 A
Standard Alligator Clips, (colors)	*2	300 V CAT I	3 A
4mm Banana Plug Adapters (colors)	*2	33 Vdc/ 70 Vac	36 A
Insulated Alligator Clips, (colors)	*3	600 V CAT IV	36 A
Sense Lead Pair, 1 m (Black & Red)	1	33 Vdc/ 70 Vac	3 A

* Colors: Black & Red

General Purpose Power Supply Accessory Kit
CC 545

This kit provides most everything needed to put a bench power supply to work The kit includes 3 high capacity test leads with retractile sleeve plugs. Rated at 600 V CAT II and 36 Amps, the leads provide save connection to either standard or sheathed jacks while its silicone jacket wire stays flexible under all conditions.

- High capacity retractable sheath silicone jacketed leads
- Connection adapters
- Extra-large insulated alligator clips
- Black, red and green components
- Coaxial accessories for RF testing
- Storage case

Description	Qty.	(IEC Rating)	Voltage Current Max.
Retractile Lead, 100cm (40"), Black	*3	600 V CAT II	36 A
6/4mm Spade Lug Adapter, Black	*3	33 Vdc/ 70 Vac	36 A
BNC Cable Assembly, 100cm (40")	1	500 Vrms	3 A
BNC female to Double Banana Plugs	1	500 Vrms	3 A
Banana Plug Adapter, Black	*3	33 Vdc/ 70 Vac	36 A
BNC male to Double Binding Posts	1	500 Vrms	3 A
Insulated Alligator Clip, Black	*3	600 V CAT IV	36 A

* Colors: Black, Red & Green

5A Banana Plug Power Supply Cables
TL 5A

Description	Qty.	IEC Rating	Voltage Current Max.
Leads, 4mm Banana Plug Leads, 100cm (40")	*2	33 Vdc/ 70 Vac	5 A

30A Power Supply Cable
TL 30

- #10 Spade lug to large battery clip

Description	Qty.	IEC Rating	Voltage Current Max.
Cables, #10 Lug to Battery Clip, 75cm (30")	*2	33 Vdc/ 70 Vac	30 A

Carrying Cases

LC 210A

Specifications	LC 33	LC 40	LC 210A	LC24	LC 29B
For Models	Clamp-on DMM 312B, 313A, 316, 325, 330B, 350B, 367A, 369B	Function Generators 4010A, 4011A, 4012A 4017A, 4040A Bench Top DMM 2831E	Oscilloscopes 2120B, 2121, 2125A, 2126A, 2190B, 2522B Spectrum Analyzers 2630	Mini-Pro® DMM 2405A, 2407A, 2408	Component Testers 810C, 815, 875B, 878B, 885, 890B, 879B & 830B
Dimensions	5 x 1.75 x 10.5" (127 x 44 x 267 mm)	11 x 5.5 x 12" (279 x 140 x 305 mm)	15 x 7.5 x 17.5" (381 x 191 x 445 mm)	3.75 x 1.5 x 6.75" (95 x 38 x 171 mm)	4 x 2.5 x 8" (102 x 64 x 203 mm)
Weight	3.18 oz. (90 g)	1.02 lbs. (470 g)	2.36 lbs. (1070 g)	1.27oz. (36 g)	2.47oz. (70 g)
Material	1000D Navy Cordura Laminate to a 3/16" foam padding, trico backing		1000D Navy Cordura 400D nylon packcloth inside to help it encompass the 1/4" foam padding	1000D Navy Cordura Laminate Laminate to a 3/16" foam padding, trico backing	

General Features

These probes are high quality, easy to use family of 5 mm passive voltage oscilloscope probes in stylish, slimline bodies. The series features superior input impedances for enhanced measurement performance when compared to other oscilloscope probes.

- Slim, stylish body
- Snap-Locking Sprung Hook
- Easily replaceable tip
- Large accessory set
- Meets IEC 61010-031 CATII
- RoHS compliant

17/150 MHz Passive oscilloscope probe

PR150B

Medium bandwidth, high impedance 1x/10x switchable voltage probe with 10 MΩ input impedance (10x position).

500 MHz Passive oscilloscope probe

PR500B

High bandwidth, high impedance 10x passive voltage probe with 10 MΩ input impedance.

250 MHz Passive oscilloscope probe

PR250B

High bandwidth, high impedance 10x voltage probe with 10 MΩ input impedance.

200 MHz High voltage oscilloscope probe

PR2000B

High bandwidth, high voltage 100x passive voltage probe with a 100 MΩ input impedance.

Specifications	PR150B	PR250B	PR500B	PR2000B
Type	5 mm Passive Voltage	5 mm Passive Voltage	5 mm Passive Voltage	5 mm Passive Voltage
Bandwidth	17/150 MHz	250 MHz	500 MHz	200 MHz
Attenuation	1x/10x	10x	10x	100x
Input Impedance	1/10 MΩ	10 MΩ	10 MΩ	100 MΩ
Input Capacitance	≈45/12 pF	≈12 pF	≈10 pF	≈5 pF
Rise Time	20/2.3 ns	1.4 ns	0.7 ns	1.8 ns
IEC Rating	300 V CAT II	300 V CAT II	300 V CAT II	2,000 V CAT I
Compensation	10–30 pF	10–30 pF	6–22 pF	10–30 pF
Cable Length	1.2 m	1.2 m	1.2 m	1.2 m
Attenuation Accuracy	-	-	-	6%
Voltage Coefficient (VCR)	-	-	-	≤30 ppm/V
Operating Temperature	0° to +50° C	0° to +50° C	0° to +50° C	0° to +50° C
Humidity	85% RH or less (at 35° C)	85% RH or less (at 35° C)	85% RH or less (at 35° C)	85% RH or less (at 35° C)
RoHS (2002/95/EC)	Compliant	Compliant	Compliant	Compliant

General Accessories
Oscilloscope Probes

Active Differential Probe
PR-60
Allows for safe and accurate floating measurements with your standard analog or digital oscilloscope. Switchable between x10 and x100 attenuation. Unit includes black and red probes and protective rubber jacket.

Applications include:
- Switching power supply designs
- Motor drive design
- Electronic ballast design
- CRT display design

Specifications	PR-60
Bandwidth	25 MHz (-3 dB)
Attenuation Ratio	x10/x100
Accuracy	±2%
Rise Time	14 ns
Input Impedance	4 MΩ/10 pF each side to ground
Input Voltage	
Max. Differential	±700 V (DC+Peak AC)
Max. Common Mode	±700 V (DC+Peak AC)
Output Voltage	
Max. Amplitude	±7 V (into 2 kΩ load)
Offset (Typical)	≤±5 mV, -10°to 40° C
Noise (Typical)	1.5 to 2 mV
Source Impedance	1 Ω @ 1 kHz 8 Ω @ 1 MHz
CMRR	
50Hz	86 dB
20kHz	66 dB
200kHz	56 dB
Probes	Sprung Hooks (B/R)
Length of Input Lines	18" (45 cm)
Operating Temperature	14° to 104°F (-10° to 40°C)
Power Requirements	4 x AA Cells
Certification	IEC61010-1 CATIII

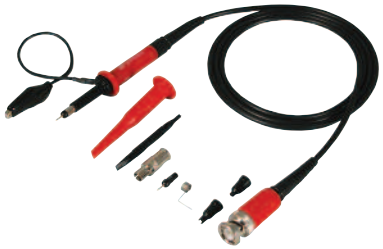
BNC / N Adapter Kit
CC-25
This kit contains the most popular In Series and Between Series BNC and N type adapters. Solve your hookup problems easily. Bodies are brass, nickel plated with gold plated center contacts.
- Nine BNC and N type adapters
- 50 Ω impedance
- 500 Vrms Rating

RF Detector Probe
PR 32A
All purpose RF detector probe, usable with most oscilloscopes. Features light weight design and 48" (1.2 m) coaxial cable.

Specifications	PR 32 A
Bandwidth	100 kHz - 650 MHz
Accuracy	±3 dB
Voltage	200 V
HF Voltage	50 Veff
Actuating Voltage	250 mV
Input Capacitance	5 pF
Cable Length	48" (1.2 m)
Body Color	Black

General Purpose Passive Probes
This full line of probes increases the versatility of your oscilloscope with both fixed and switchable attenuation. Each probe includes a full accessory kit with a sprung hook, replacement tip and BNC adapter. All models compliant to IEC61010-031

Model PR-55



Model PR 37AR

	Passive Probes			High Voltage (passive)	
Specifications	PR 33A	PR 37 AG	PR 37AR	PR 100A	PR-55
Bandwidth (MHz)	15/90	6/150	6/150	250	50
Attenuation	x1/x10	x1/x10/REF	x1/x10/REF	x100	x1000
Input Impedance R(MΩ)	1/10	1/10	1/10	100	100
C(pF)	46/16	100/15	100/15	6.5	1
Voltage (VDC+ACmax)	600	600	600	1,200	10,000
Compensation (pF)	10..35	10..35	10..35	10..35	10..30
Cable Length	48" (1.2 m)	48" (1.2 m)	48" (1.2 m)	48" (1.2 m)	80" (2.0 m)

General Purpose Function Generator Kit

CC510

This kit provides a range of BNC and N Type coaxial interconnection for basic function / arbitrary waveform generators use. All components feature standard BNC or N Type interfaces with 50 ohm impedance and gold plated center contacts to ensure accurate repeatable measurements. The kit is provided in a convenient foam lined storage case for easy selection and use.

Description	Qty.	Frequency Range	VSWR Max.
BNC Cable Assembly, 100cm (40")	2	DC - 1 GHz	1.20:1 @ 1 GHz
BNC Feed-Thru Terminator, 2W	1	DC - 1 GHz	1.20:1 @ 1 GHz
BNC Tee, female-male-female	1	DC - 4 GHz	N/A
BNC female to Double Banana Plugs	2	N/A	N/A
BNC female to N type male	1	DC - 4 GHz	1.30:1 @ 4 GHz
BNC female to N type female	1	DC - 4 GHz	1.30:1 @ 4 GHz
BNC Attenuator, 20 dB (10x) 2W	1	DC - 4 GHz	1.25:1 @ 4 GHz

Deluxe Function Generator & Counter Kit

NEW

CC520

This kit provides a complete range of coaxial adapters and cables for general-purpose function, pulse, signal & arbitrary-waveform generators as well as frequency counters. All kit components feature precision machined bodies, 50 Ω impedance and low VSWR to ensure accurate and repeatable measurements. The kit is provided in a convenient foam lined case for easy component selection and storage.

Description	Qty.	Frequency Range	VSWR Max.
BNC Cable Assembly, 100cm (40")	3	DC - 1 GHz	1.20:1 @ 1 GHz
BNC Feed-Thru Terminator, 2W	1	DC - 1 GHz	1.20:1 @ 1 GHz
BNC Tee, female-male-female	1	DC - 4 GHz	N/A
BNC female to Double Banana Plugs	2	N/A	N/A
BNC female to N type male	2	DC - 4 GHz	1.30:1 @ 4 GHz
BNC female to N type female	1	DC - 4 GHz	1.30:1 @ 4 GHz
BNC Attenuator, 20 dB (10x) 2W	2	DC - 4 GHz	1.25:1 @ 4 GHz

Function Generator Accessory Kit

TLFG

The kit provides convenience and functionality to get a user up and running quickly. The kit eliminates the time consuming start-up task of collecting cables and adapters.

Description	Qty.	Frequency Range	VSWR Max.
BNC Cable Assembly, 120 cm (48")	2	DC - 1 GHz	1.20:1 @ 1 GHz
BNC (f) Breakout w/Miniature Alligators Clips	1	DC - 1 GHz	N/A
BNC (f) Breakout w/Ø.031 Sockets	1	DC - 1 GHz	N/A
MiniFlex IC Clips, *Black & Red Pair	*2	N/A	N/A
MicroFlex IC Clips, *Black & Red Pair	*2	N/A	N/A
BNC Tee, female-male-female	1	DC - 4 GHz	N/A
BNC female to N type male	1	DC - 4 GHz	1.30:1 @ 4 GHz

General Purpose Oscilloscope Adapter Kit

CC540

This kit provides a range of BNC and N type coaxial interconnection for general purpose oscilloscope test interconnections. All components feature standard BNC or N type connectors with 50Ω impedance to ensure accurate measurements. The kit is provided in a convenient foam lined storage case for easy selection and use.

Description	Qty.	Frequency Range	VSWR Max
BNC male Cable, 100cm (40")	2	DC - 1 GHz	1.20:1 @ 1 GHz
BNC male Cable, 25cm (10")	2	DC - 1 GHz	1.20:1 @ 1 GHz
BNC Feed-Thru Terminator, 2W	1	DC - 1 GHz	1.35:1 @ 1 GHz
BNC Tee, female-male-female	1	DC - 4 GHz	N/A
BNC Tee, female-female-female	1	DC - 4 GHz	N/A
BNC female to Double Banana Plugs	1	N/A	N/A
BNC female to N type male	4	DC - 4 GHz	1.30:1 @ 4 GHz
BNC female-female	1	DC - 4 GHz	1.30:1 @ 4 GHz
N Type male to SMA female	1	DC - 8 GHz	1.30:1 @ 8 GHz
BNC male to N type female	1	DC - 4 GHz	1.30:1 @ 4 GHz
SMA male Cable, 100cm (40")	1	DC - 6 GHz	1.20:1 @ 6 GHz
BNC Attenuator, 20 dB (10x) 2W	2	DC - 4 GHz	1.25:1 @ 4 GHz

General Accessories
RF & Spectrum Analyzer Kits

Deluxe Spectrum Analyzer Accessory Kit
CC560

This kit provides a complete range of high quality coaxial adapters and cables for spectrum analyzer applications.

- Convenient interconnection kit
- BNC & N type 50 Ω connectors
- Instrument grade adapters
- Gold plated center contacts
- Storage case

Description	Qty.	Frequency Range	VSWR Max.
BNC Cable Assembly, 120cm (48")	3	DC - 1 GHz	1.20:1 @ 1 GHz
BNC Feed-Thru Terminator, 2W	1	DC - 1 GHz	1.20:1 @ 1 GHz
N type female to female	1	DC - 11 GHz	1.05:1 @ 2 GHz
N type male to male	1	DC - 11 GHz	1.04:1 @ 2 GHz
BNC female to Double Banana Plugs	2	N/A	N/A
BNC female to N type male	2	DC - 10 GHz	1.12:1 @ 1 GHz
BNC Tee female to male to female	1	DC - 10 GHz	N/A
BNC female to N type female	1	DC - 10 GHz	1.04:1 @ 1 GHz
N Type female to SMA female	1	DC - 11 GHz	1.06:1 @ 2 GHz
N Type male Cable, 100cm (40")	1	DC - 18 GHz	1.20:1 @ 10 GHz
BNC to SMA male Cable, 60cm (24")	1	DC - 6 GHz	1.20:1 @ 6 GHz
N Type Attenuator, 10 dB (3.2x) 2W	1	DC - 12.4 GHz	1.25:1 @ 12.4 GHz

Spectrum Analyser Coaxial Cable & Adapter Kit
CC265

This convenient kit provides the most popular and useful coaxial accessories to connect to B&K Precision's spectrum analyzers and other RF test equipment. The kit is a replacement for B&K Precision model numbers CC 301, CC 302, CC 303, CC 304, CC 305, CC 306 & CC 307.

Description	Qty.	Frequency	VSWR Max.
SMA male Cable, 60cm (24")	1	DC – 18 GHz	1.3:1 @ 18 GHz
BNC male to SMA female	1	DC – 4 GHz	1.30:1 @ 4 GHz
BNC female to SMA female	1	DC – 4 GHz	1.30:1 @ 4 GHz
N type male to SMA female	1	DC – 11 GHz	1.30:1 @ 11 GHz
N type female to SMA female	1	DC – 11 GHz	1.30:1 @ 11 GHz

General Purpose Universal Coaxial Adapter Kit
CT2701

This kit provides a convenient solution for most interconnection needs. The included 6 universal adapters allows assembly of hundreds of different configurations: male to male, female to female, male to female, in-series and between-series for BNC, TNC, N-Type, F, RCA, SMA, UHF and Mini-UHF.

Description	Qty.
Universal Adapters	6
BNC male Adapters	2
BNC female Adapters	2
F male Adapter	1
F female Adapter	1
N Type male Adapters	2
N Type female Adapters	2
RCA male Adapter	1
RCA female Adapter	1
SMA male Adapter	1
SMA female Adapter	1
TNC male Adapters	2
TNC female Adapters	2
UHF male Adapters	2
UHF female Adapters	2
Mini-UHF male Adapter	1
Mini-UHF female Adapter	1

- Convenient interconnection kit
- BNC, TNC, N, SMA, RCA, F, SMA & Mini-UHF connectors
- Tarnish resistant nickel finish
- Gold plated center contacts
- Zippered storage case

General Purpose BNC & N Type Adapter Kit
CC500

This general purpose BNC & N type adapter kit provides a comprehensive range of in-series and between-series BNC and N type coaxial adapters for basic RF testing and troubleshooting needs.

- 12 piece kit
- BNC & N type 50Ω Connectors
- Gold plated center contacts
- Storage case

Description	Qty.	Frequency Range	VSWR Max.
BNC Tee female-male-female	1	DC - 4 GHz	N/A
N type female-female	1	DC - 8 GHz	1.30:1 @ 8 GHz
N type male-male	1	DC - 8 GHz	1.30:1 @ 8 GHz
N type Tee female-male-female	1	DC - 8 GHz	N/A
BNC female to N type male	1	DC - 4 GHz	1.30:1 @ 4 GHz
BNC male to N type female	1	DC - 4 GHz	1.30:1 @ 4 GHz
BNC female-female	1	DC - 4 GHz	1.30:1 @ 4 GHz
BNC male-male	1	DC - 4 GHz	1.30:1 @ 4 GHz
BNC female to N type female	1	DC - 4 GHz	1.30:1 @ 4 GHz
BNC Tee female-female-female	1	DC - 4 GHz	N/A
N type Tee female-female-female	1	DC - 8 GHz	N/A
N type Right-Angle male-female	1	DC - 8 GHz	1.35:1 @ 8 GHz

40 kV High Voltage DMM Probe

Model PR 28A

For voltage measurements above the specifications of general purpose probes.

Specifications	PR 28A
Attenuation	x1000
Voltage (AC)	20 kV
Voltage (DC)	40 kV
Bandwidth	60 Hz
Input Impedance	1000 MΩ
Accuracy (AC & DC)	±3%
Cable Length	48" (1.2 m)

Maxi-Pro DMM Kit

TL-50

Complete accessory kit for all your testing needs. Includes soft, flexible silicone lead wire for easy movement.

- IEC61010-031 compliant
- Silicone lead wire length 60" (1.5 m)
- Tri-fold velcro pouch

Description	TL-50		
4mm Straight to Right-Angle Silicone Leads, 1.5 m	1000 V	CATIII	12 A
Probe Bodies w/Ø2 mm Tip	1000 V	CATIII	36 A
Pincer Style Clips	1000 V	CATIII	6 A
Alligator Clips	300 V	CATI	3 A
Spade Lug Adapters	42 V (1000 V)	-	36 A
Banana Plug Adapters	42 V (1000 V)	-	36 A
Fully Insulated Alligator Clips	1000 V	CATIII	20 A

Surface Mount Tweezers

TL 8

- Two conductor leads
- 400 Vrms, 1 A

High Performance Bench DMM Accessory Kit

TL500

This kit of accessories was assembled to facilitate requirements by high-performance bench digital multimeters (DMM's) users. All the most popular accessories in one kit. The kit offers MiniProbe' test probe, with spring-loaded tips, for fine probing; MiniPRO Test Clips for small and MiniFlex Test Clips for micro connections; and for those larger test points, both spade lug and banana plug adapters, two pairs of test leads for 4-wire measurements or calibration hookups, an insulated BNC male to sheathed banana jack adapter, and an insulated SMD Tweezer set for surface-mount component testing.

- Silicone jacketed test lead wire
- MiniProbes w/spring loaded stainless steel tips
- Packaged in plastic case
- RoHS (2002/95/EC)

Qty.	Description	Color
(4)	Test Lead 4mm Sheathed P-RaP Silicon 0.75, 100 cm (40")	(2) Black, (2) Red
(2)	Spring Tip Mini-Probe-4mm Jack	(1) Black, (1) Red
(1)	Insulated BNC male Adapt-4mm Safety Jacks	-
(2)	Adapter 4mm Banana Plug to Jack	(1) Black, (1) Red
(2)	Mini Flex Clip-4mm Jack-Silicon 0.40, 10 cm	(1) Black, (1) Red
(2)	Adapter 6mm Spade 4mm-Jack	(1) Black, (1) Red
(2)	Lead minipro-J-PVC 0.40, 10 cm	(1) Black, (1) Red
(1)	Tweezer Test Lead Set- 4mm P, w/PVC pouch	-

Red and Black CAT III (IV) 1000V (600V) Test Leads

TL37

Right angled sheathed banana replacement 10A test leads for digital multimeters.With tip cap on, they are rated CATII 1000 V, CAT IV 600 V with tip cap off, they are rated CAT II 1000 V

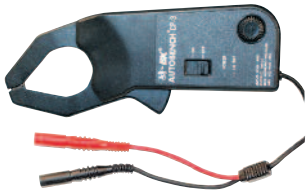
General Purpose DMM Kit

TL 130A

If you need only one basic accessory kit for your meter, this is the one. Attach probes or clips to the sheath plug to complete your test. Soft, flexible silicone leads make movement easy. Kit is voltage and current rated for electronic or electrical applications.

- IEC61010-2-031 compliant
- Silicone lead wire length 60" (1.5 m)
- Tri-fold velcro pouch

Description	TL-130A		
4mm Straight to Right-Angle Silicone Leads, 1.5 m	1000V	CATIII	12 A
Probe Bodies w/Ø2mm Tip	1000V	CATIII	36 A
Alligator Style Clips	1000V	CATIII	20 A
Alligator Clips	300V	CATI	3 A



DC/AC Current Clamp

CP 3

- Converts any DMM to a current clamp
- Measures current without disconnecting circuit under test
- Measures to 400 A DC or AC
- Outputs 1 mV per Amp, operates on 2 V range of any DMM

Specifications	CP 3
(Accuracy specified at 18° to 28°C)	
Current Range	2 A to 400 A, DC or AC
Frequency Response (AC)	50 Hz - 400 Hz
Accuracy	±(2% reading + 2 A)
Input Resistance	10 kΩ min.
Maximum Conductor Size	1.1"(30 mm)
Power Requirement	9 V battery, NEDA 1604
Battery Life	100 hr typical
Operating Temperature	0° to 40°C, <70% RH
Storage Temperature	-20° to + 70°C, <80% RH

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Support & Service

At B&K Precision, we're committed to providing excellent product support and customer service to both current and future users of our products, and strive to continuously improve our operations. We're regularly upgrading our existing capabilities and services, and adding new methods of support to meet the changing needs of our valued customers.

Technical support

To help our customers determine quickly and efficiently which instruments best fit their application and budget, we provide comprehensive and growing resources on our website such as: data sheets, user manuals, high resolution product images, selection guides and tools, software, videos, application notes, product guides, and "where to buy" information. If you can't find the information you are looking for using our website, you can call us and talk to an experienced engineer with in-depth knowledge of our products who will be able to discuss your application and requirements.

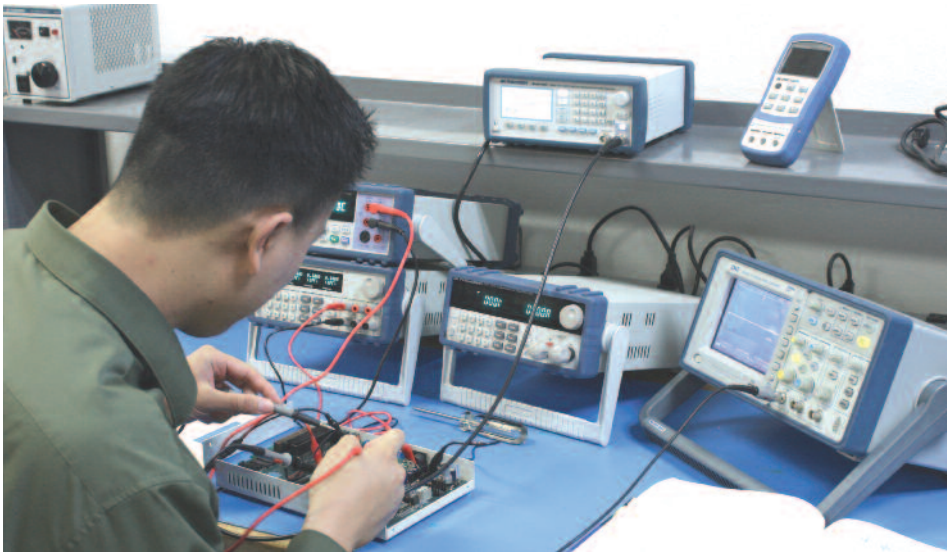
If you need help with an instrument you've already purchased, we are here to assist you with product setup, usage or troubleshooting. You can find additional support by browsing our knowledge base or you can contact us directly via email or phone, which are answered in a timely manner by a qualified engineer.

Calibration and repair

Every new B&K Precision instrument comes standard with a 1, 2, or 3-year warranty against defects from the original date of purchase. Our warranties are valid worldwide, and we provide service and support through our global network of partner companies and dedicated service centers to guarantee your satisfaction.

The following calibration and repair options are currently available: NIST traceable calibration with or without data, warranty repair with a guaranteed turnaround time of 10 business days (excluding shipping time to/from B&K Precision, Yorba Linda, CA, USA), reasonably priced out-of-warranty instrument repair with fixed prices, and pre-paid calibration packages.

We make every attempt to support our customers even long after a product has been discontinued. Our goal is to service and repair B&K products up to 7 years after their obsolescence date, provided spare parts are still available. In many cases, we provide user manuals, calibration procedures, spare parts and schematics for selected discontinued products well beyond the 7-year period.



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B&K PRECISION
ELECTRONIC TEST INSTRUMENTS

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